

Family Economics and Nutrition Review

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TRIBUTE
To
Joan Courtless, Editor
Family Economics and Nutrition Review
1986-1997

This issue is dedicated to Joan Courtless, who recently retired as editor of *Family Economics and Nutrition Review*. Joan was the editor of the journal from 1986 to 1997. As editor, she made many significant and positive contributions to the journal. She oversaw the transition from *Family Economics Review* to *Family Economics and Nutrition Review*, with its greater emphasis on matters of nutrition and nutrition policy. She guided the journal in the direction of soliciting and reviewing externally authored articles. She herself authored numerous articles, many dealing with clothing issues, and she edited the 50th anniversary issue of the journal. Colleagues and readers associated with the journal will miss Joan and wish her the best.

Maintaining Nutrition Security and Diet Quality: The Role of the Food Stamp Program and WIC

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We examine the contribution of the Food Stamp Program (FSP) and the Special Supplemental Program for Women, Infants, and Children (WIC) to the nutrition security and diet quality of low-income participating households. This information can improve future monitoring of the effects of welfare policy reforms. Welfare reform has emphasized moving people from welfare to work and modifying or eliminating many former entitlement programs. However, after debate, Federal food assistance programs were retained as a nutritional safety net, although in some cases access and benefits were restricted. Using historical consumption data (CSFII 1989-91), we examine the hypothesis that participation in the FSP and/or WIC is an important factor in maintaining and improving the diet quality of low-income households. Using USDA's Healthy Eating Index (HEI), as an indicator of overall diet quality, and its 10 component indices, we estimate for the first time overall diet quality effects of changes in FSP and WIC participation and benefit levels. (The HEI permits us to examine diet quality as nutritionists see it—with some foods consumed too little and others too much.) Results suggest that both programs contribute significantly to maintaining and improving the nutritional well-being of low-income households, considering both quantity and quality of diet components. We believe the implication is that these food assistance programs help low-income households achieve nutrition security—including improved diet quality—and that their support provides a critical safety net to accompany welfare reform.

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o examine relationships between diet quality and food program participation, we use USDA's 1989-91

Continuing Survey of Food Intakes by Individuals (CSFII) to analyze how the diet quality of low-income households is affected by participation in the Food Stamp Program (FSP) and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). The measure of diet quality used is the USDA Healthy Eating Index (HEI), developed to assess the overall quality of individuals' diets, defined as the degree of adherence to Federal nutritional guidance (12,22). The Index consists of 10 equally weighted components that reflect how well individual diets conform to both the 1995 *Dietary Guidelines for Americans* (26) and the USDA *Food Guide Pyramid* (25) recommendations. Use of this index permits us to examine changes in diet quality associated with program benefits that may involve consuming less of particular dietary components and more of others.

For the first time, this article reports how responsive the HEI and its individual components are to participation in the FSP and WIC. To provide a context for the analysis that follows, we briefly describe the FSP and WIC within the framework of Federal food assistance. We then mention pertinent elements of welfare reform and food assistance program changes to indicate how legislative provisions may affect food assistance program participants. We present methods and results and discuss implications.

Overview and Background on Food Programs and Welfare Reform Context

The United States has a longstanding commitment to supporting food and nutrition security. Fourteen domestic food assistance programs comprise the formal Federal food and nutrition safety net and provide low-income consumers with foods, or with expanded means to purchase food products, along with nutrition information and education (table 1, p. 6).

Among the "modern" Federal programs that began in 1945 with the National School Lunch Program and, 53 years later, have grown to provide about \$37 billion annually (23), FSP and WIC are arguably the most significant in terms of benefits transferred and nutritional vulnerability of recipients, respectively. Advocates of the food assistance programs contend that they improve participants' diet quality and ameliorate public health. Despite welfare reform in late 1996, the structure of the Federal food programs was essentially preserved.

However, FSP eligibility criteria and benefit levels were severely curtailed for some key groups—including legal immigrants and able-bodied adults without dependents—and results of this analysis raise concerns about the potential, negative effects on diet quality of affected groups when, or if, access to these two important food and nutrition programs is reduced.

The FSP, an entitlement program, is the main food security program for low-income households and provides coupons or electronic benefit cards to enhance

recipients' food purchasing power and nutritional status. By FY 1996, the FSP provided \$24.3 billion in benefits to an average of 10 million households and 25.5 million individuals. In FY 1996, the average monthly benefit received was more than \$73 per person and more than \$172 per household (24). Over 80 percent of Food Stamp households contain either a child, elder, or disabled person, and 42 percent are single-parent households (24).

WIC is targeted to pregnant and postpartum (including breast-feeding) mothers, infants, and children up to 5 years of age at nutritional risk and serves more than 7 million people each month at an annual program cost of about \$3.7 billion. WIC provides a combination of services including nutrient-dense food packages, nutrition counseling, and access to health services. Approximately 45 percent of all infants and 25 percent of all pregnant women in the United States participate in the WIC Program (11). The value of the average 1995 WIC food package was \$43.12 per month, and the average monthly infant food package was \$73.74 (24). The most common foods included in the WIC packages are milk, cheese, infant formula, cereal for adults and infants, juice, peanut butter, dried beans, and eggs. In 1992, a WIC Farmers' Market Nutrition Program was created to provide additional coupons to WIC participants, which can be used to purchase fresh fruits and vegetables in farmers' markets. This is a relatively minor share of the WIC Program, constituting only about \$7 million of the \$3.7 billion total WIC benefits.

Table 1. Federal food assistance programs

Program name	Year begun	FY 1996 budget (in millions)	FY 1996 Participation
National School Lunch Program	1945	\$4,313	24,050,000 bunches per day
Special Milk Program	1955	\$16.8	144,246,000 total served
Food Stamp Program	1961 pilot 1974 permanent	\$24,330	25,540,000 recipients per month
Nutrition Program for the Elderly	1965	\$150	245,979,000 total meals
School Breakfast Program	1966 pilot 1975 permanent	\$1,118	6,103,000 daily average breakfasts served
Summer Food Service Program	1968	\$258	2,216,000 daily average attendance (July)
Commodity Supplemental Food Program	1968	\$100.2	357,000 average participation
Special Supplemental Program for Women, Infants, and Children (WIC)	1972 pilot 1974 permanent	\$3,730	Average participation 1,648,000 (women) 1,827,000 (infants) 3,712,000 (children)
Child and Adult Care Food Program	1975 pilot 1978 permanent 1989 adults	\$1,553	2,343,000 August average 1,546,171,000 total meals served
Food Distribution Program on Indian Reservations	1977	\$70	120,000 average
The Emergency Food Assistance Program	1981	\$44	40,899,000 total pounds distributed
Nutrition Assistance Program for Puerto Rico	1981	\$1,153	Not available
Homeless Children Program	1989	\$3	Not available
WIC Farmers Market Nutrition Program	1992	\$7 (of WIC total)	742,000 Federal 364,000 Non-Federal

Source: U.S. Department of Agriculture, Food and Nutrition Service. 1998. Administrative data.

The FSP and the WIC Program share some commonalities. Each transfers benefits to low-income individuals to enhance food consumption and diet quality. As an entitlement program, the FSP conveys food purchasing power to any low-income individual who meets eligibility criteria (based on means testing). Food purchases are relatively unrestricted. Nutrition education is a much smaller component of the FSP than of the WIC Program. By contrast, the WIC Program is not an entitlement program but targets specific priority subgroups of the low-income population as funds are appropriated. WIC provides vouchers for purchase of one of seven food baskets selected to be nutrient-dense and to supply specific nutrients deficient in the diets of the target participants. Unlike the FSP, WIC includes individual nutrition counseling along with a referral to other subsidized health services.

Evaluations of the effects of the two programs suggest generally that they have been successful. Food consumption surveys show that diets of the poor improved markedly between 1965-66 and 1977-78, a period marked by nationwide expansion of the FSP (5). Numerous studies have shown that the FSP has succeeded in transferring purchasing power to low-income consumers and has increased food expenditures and nutrient availability relative to the transfer of cash benefits (3,7,14,15).

Seventeen studies summarized by Fraker and cited by Rossi yielded estimates that out of each food stamp dollar, between \$0.17 and \$0.49 was spent on home-consumed food ("best estimate, \$0.30") compared with only \$0.05 to \$0.10 of each dollar of cash benefits transferred. Fraker found that food stamp participation significantly increased the household availability of calcium, vitamin C, and iron. Far fewer studies have demonstrated the link between program participation, individual intake data, and improved nutritional status. WIC Program evaluations from the inception have demonstrated WIC effectiveness in increasing birth weight, decreasing incidence of low birth weight and prematurity, improving hematological status, and/or improving nutrient intake (11,18,19).

Recent welfare reform includes replacement of Federal welfare payments with block grants to States (Temporary Assistance for Needy Families Program, or TANF), welfare time limits and caps, and State discretion among benefit types, levels, and eligibility standards. States are encouraged to promote work and move recipients from welfare to work. Legal immigrants were made ineligible for Federal TANF benefits. Major food assistance program changes passed in 1996 included reductions in food stamp benefits for able-bodied adults without dependents and elimination of Federal food stamps for most legal immigrants. (The President's 1998 Budget restores some immigrant FSP benefits.) In the welfare reform context, if lost food assistance and welfare benefits are replaced by increased earnings or other income, then net effects on dietary status may be more modest. If, however, food and welfare assistance losses are not offset, effects found here are likely to be illustrative.

Methodology

We use the Healthy Eating Index developed by the USDA Center for Nutrition Policy and Promotion as the indicator of individual and household overall diet quality. Based on the 1995 *Dietary Guidelines for Americans* and the *Food Guide Pyramid* (FGP), this index almost alone focuses on the consumption of foods rather than nutrients. Few indices focusing on the total diet exist (1,2,17,21) and most of these—with the exception of Patterson et al.—focus exclusively on consumption of nutrients.

The Healthy Eating Index has 10 equally weighted components, each based on different aspects of a healthful diet. The score of each component ranges between zero and 10 and the overall index, from zero to 100. The components can be grouped in terms of those that relate to adequacy or sufficiency, to moderation, and to variety in the diet. Specifically, Components 1 through 5 measure the degree to which a person's diet contains adequate servings of the 5 major food groups depicted in the FGP: Grains, vegetables, fruits, milk, and meats. Components 6 through 9 measure how well recommendations to moderate fat, saturated fat, sodium, and cholesterol are met. Component 6 is based on total fat consumption as a percentage of total food energy intake; component 7 is based on saturated fat consumption as a percentage of total food energy intake; component 8 is based on cholesterol intake; and component 9 is based on sodium intake. Finally, component 10 reflects the amount of variety in a person's diet. The HEI does not set overall limits on food energy consumed.

An individual's score in any of the food group components is based on the proportion of the recommended number of servings consumed for a given energy intake level. For instance, the average energy allowance for a 40-year-old female is 2,200 kilocalories, and the FGP indicates that at this energy level, 4 servings of vegetables per day are recommended. If a 40-year-old female consumes the recommended number of servings, she receives the maximum score of 10 in the vegetable category.

A person who consumes the recommended number of servings from any food group receives a maximum component score of 10. A person consuming no servings from a food group receives the minimum score of zero. Between zero and 10, the component score is calculated proportionately; for example, a person needing 6 servings from the grain category who consumed only half that many would achieve a score of 5. Food serving amounts were computed from food consumption data using factors derived from the serving size assumptions given in the FGP.

Calculation of scores for all food group (adequacy) components followed this procedure with actual servings compared with recommended servings based on the FGP. In each food group, once the maximum recommended number of servings is achieved, neither further credit nor penalties are awarded for additional servings consumed.

Components 6 to 9 measure moderation in the diet and are scored differently. Component 6 reflects how well total fat is limited in the diet: A score of 10

means total fat intake as a proportion of energy intake is 30 percent or less. The score declines to zero when this proportion reaches 45 percent. Between these two points, the scores decline proportionately. The score for saturated fat (component 7) is computed analogously to that for total fat, with a maximum score achieved at a ratio of less than 10 percent of energy from saturated fat and zero when the ratio is 15 percent or greater.

The component scores for cholesterol and sodium are each based on milligrams consumed. Cutoff points for a perfect score of 10 are set at 300 mg for cholesterol and 2,400 mg for sodium. The corresponding zero points are 450 mg and 4,800 mg for cholesterol and sodium, respectively.

Finally, the *Dietary Guidelines*, as well as the National Academy of Sciences' *Diet and Health Report (16)*, stress the importance of variety in the diet to help ensure that people get the nutrients they need. To assess variety, counting the total number of different foods eaten by an individual that contribute substantially to meeting one or more of the 5 food group requirements is necessary. Foods consumed were counted only if they amounted to at least one-half serving in any one food group. Identical food items eaten on separate occasions are summed before imposing the one-half serving cut-off. Similar foods such as two different forms of potatoes or two different forms of white bread count only once in the variety category. Mixtures are decomposed into constituent parts, meaning that a single food mixture (such as lasagna) could contribute

2 or more points to the variety index (contributing to both grain and meat, for example).

In the variety category, a person attains a score of 10 if 16 or more different foods are eaten over a 3-day period. If 6 or fewer distinct foods are eaten over a 3-day period, the individual earns zero. Here again, little guidance was available to suggest upper or lower limits in scoring variety; similar to categories 6 to 9, the limits for variety were derived by exploration of the consumption data and consultation with researchers. For a more detailed description of the construction of the HEI, see Kennedy et al. or U.S. Department of Agriculture (12,22).

Data

Data used in this study were collected in USDA's Continuing Survey of Food Intakes by Individuals (CSFII) 1989-91. The CSFII provides ongoing data on food and nutrient consumption with a yearly sample of about 2,000 households containing about 5,000 individuals. In CSFII 1989-91, 3 days of food and nutrient intake data (a 1-day recall followed by a 2-day diary) were obtained along with relevant demographic, economic, and Federal food program participation data. Food and nutrient consumption data from a separate low-income sample were also collected at the same time. The survey design was such that each year's data are nationally representative and can be used independently; however, the combined years provide a larger sample size. The low-income sample can be combined with the all-income sample through the use of survey weights. These survey weights

also adjust the survey sample to be representative of the U.S. population living in households. This analysis uses low-income households with complete data records in the combined 1989-90 sample (N=1,438); the HEI was not available for 1991.

Low-income households were those with annual income of 130 percent or less of the poverty threshold. There were 418 households participating in the FSP at the time of the survey. Of those, 359 had every household member authorized to receive food stamps. The remaining 59 FSP households with one or more members not authorized to receive food stamps were excluded from the analysis so as not to confound the relationships because of possible leakage of benefits (i.e., use of food purchased with food stamps by nonauthorized household members). This resulted in a final sample size of 1,379 households.

Statistical Model

A set of 11 reduced form equations was estimated including one HEI equation and one equation each for the 10 component dietary scores. This Ad Hoc reduced form specification was guided by household production theory (6) and previous studies of food and nutrient consumption in order to estimate net effects of the independent variables on the HEI and its components (2,10,13). Because the household is the unit of analysis in this study, each household member's HEI and component scores are totaled. These aggregated scores are the dependent variables. Independent variables are annual household income as a percentage of the poverty threshold; participation in the FSP; the weekly dollar value of food stamps received; participation by one or more household

members in the WIC Program; household size in Thrifty Food Plan Male Adult Equivalents (TFP MAEs);¹ headship status; the higher grade of formal schooling completed by either head of household; race; ethnic origin; geographic region and urbanization; and tenancy status. The number of household members who did not provide 3 days of dietary intake data, and thus lacked an HEI and component scores, was entered in the regression equation as an additional control. Because the HEI is, by construction, equal to the sum of its components, the 10 component equations' estimated coefficients were restricted to sum to the corresponding estimated coefficient of the HEI equation. This specification results in a potential gain in statistical efficiency. Restricted Ordinary Least Squares was used to estimate the models (9) and the SYSLIN procedure of the Statistical Analysis System (20) performed the estimation.

Results

Results include the means for the dependent and independent variables and the estimated regression coefficients as shown in table 2. The means are further subdivided by Food Stamp Program participation status. All means are weighted to represent population means of low-income households, and within those, of food stamp and nonfood stamp participating households. Means of the dependent variables are *per person* and are shown directly under the dependent variable name row.

¹To account for the households' varying age/sex compositions, a "Thrifty Food Plan Male Adult Equivalent Scale" was constructed by dividing each household member's maximum allotment given by the Thrifty Food Plan by that of a male 20 to 50 years of age. Then, the household size in TFP MAEs was constructed by summing over all household members.

...the value of food stamps received exerts a positive and statistically significant effect on vegetables, dairy, meat, and sodium component scores.... [and] participation in the WIC program...has a very strong positive effect on aggregate household diet quality....

Table 2. Weighted means and regression coefficients estimating relationships between household-level Healthy Eating Index and its components by food stamp receiving households and value of food stamps received and WIC participation controlling for other relevant variables, CSFII 1989-90

	Mean			HEI	Grains	Vegetables
	All N=1,379	FSP N=359	NFSP N=1,020			
Mean for All				62.18*	5.95	5.66
Mean for FSP				60.70	5.86	5.29
Mean for NFSP				62.74	5.99	5.79
Intercept				-12.69 0.00**	-1.85 0.05	-0.06 0.95
Income as percent of poverty threshold	81.89	65.71	87.93	-0.01 0.63	0.00 0.74	0.01 0.18
Food stamp participating household	0.27	1.00		-3.86 0.03	-0.28 0.59	-0.49 0.42
Weekly value of food stamps received	9.30	34.22		0.22 0.00	0.00 0.95	0.03 0.02
Household member participates in WIC	0.08	0.19	0.05	23.45 0.00	4.20 0.00	1.19 0.06
Household size in TFP MAEs	2.13	2.29	2.07	73.00 0.00	8.27 0.00	6.08 0.00
Dual-headed household	0.34	0.20	0.39	1.12 0.54	-1.30 0.01	1.66 0.01
Female-headed household	0.53	0.71	0.46	10.67 0.00	-0.19 0.67	0.92 0.07
Highest grade completed	10.59	10.16	10.76	0.81 0.00	0.04 0.39	0.00 0.97
African American	0.23	0.33	0.19	-5.16 0.00	-0.54 0.15	-0.65 0.12
Other race	0.06	0.08	0.06	-4.16 0.05	-0.29 0.64	0.25 0.73
Hispanic ethnic origin	0.11	0.11	0.11	4.11 0.01	-0.34 0.47	-0.81 0.13
Midwest	0.26	0.24	0.27	-2.50 0.13	0.11 0.82	-0.64 0.24
South	0.42	0.39	0.44	-5.20 0.00	-0.21 0.63	-0.56 0.28
West	0.18	0.13	0.20	-0.69 0.69	-0.24 0.63	-1.31 0.02
Suburbs	0.31	0.26	0.33	-0.64 0.59	-0.11 0.76	0.02 0.95
Nonmetro	0.28	0.25	0.30	-4.46 0.00	0.30 0.39	0.01 0.99
Household rents dwelling	0.55	0.77	0.47	-0.07 0.95	0.23 0.48	0.02 0.96
Occupies dwelling without payment	0.04	0.02	0.05	1.52 0.54	0.78 0.28	-0.04 0.96
Number with no HEI	0.43	0.55	0.39	-59.70 0.00	-6.54 0.00	-5.22 0.00
Adjusted R ²				0.90	0.81	0.66

*Dependent variable means are per person with 3-day dietary intake data.

**Numbers below estimated regression coefficients are prob values.

Fruit	Dairy	Meat	Total fat	Saturated fat	Cholesterol	Sodium	Variety
3.60	6.21	7.19	6.31	5.15	8.33	7.86	5.92
3.23	6.47	7.21	6.33	4.67	8.21	7.86	5.56
3.74	6.12	7.18	6.31	5.33	8.38	7.86	6.05
-3.18	-1.48	-1.62	0.12	2.70	-2.92	0.60	-5.00
0.02	0.24	0.09	0.93	0.06	0.02	0.60	0.00
0.01	0.00	0.00	-0.01	-0.01	0.00	-0.01	0.01
0.30	0.76	0.70	0.16	0.19	0.57	0.35	0.28
-0.06	0.32	-0.42	-0.38	-0.95	-0.65	-0.72	-0.23
0.94	0.65	0.43	0.58	0.24	0.37	0.26	0.74
-0.01	0.04	0.05	0.02	0.02	0.02	0.03	0.02
0.73	0.03	0.00	0.35	0.45	0.23	0.03	0.30
2.79	3.35	2.25	2.33	-0.33	2.49	3.09	2.09
0.00	0.00	0.00	0.00	0.70	0.00	0.00	0.01
4.18	8.01	8.53	7.53	5.18	9.41	8.23	7.57
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.39	-1.10	0.41	-0.07	0.87	0.49	0.56	-0.02
0.61	0.12	0.45	0.92	0.29	0.50	0.38	0.98
1.63	-0.63	-0.40	1.11	0.96	3.04	3.39	0.84
0.01	0.29	0.38	0.06	0.16	0.00	0.00	0.16
0.19	0.22	0.05	0.04	-0.02	0.18	-0.18	0.30
0.00	0.00	0.34	0.48	0.78	0.00	0.00	0.00
-0.40	-2.70	1.06	-0.28	0.61	-0.96	-0.72	-0.57
0.45	0.00	0.01	0.56	0.28	0.06	0.11	0.26
-0.81	-3.26	-0.23	0.39	1.25	-0.91	0.64	-1.19
0.36	0.00	0.72	0.63	0.19	0.29	0.39	0.16
-0.59	-1.78	2.55	2.18	2.72	-0.08	0.18	0.08
0.38	0.01	0.00	0.00	0.00	0.90	0.75	0.90
-0.13	0.41	-0.45	-1.76	-1.79	0.84	0.81	0.12
0.85	0.52	0.35	0.01	0.01	0.20	0.16	0.86
-1.86	-1.43	0.37	-0.93	-0.41	0.23	0.59	-0.98
0.00	0.02	0.42	0.12	0.55	0.71	0.28	0.10
1.10	-0.37	-0.98	-0.74	-0.86	0.05	2.25	0.40
0.13	0.58	0.06	0.26	0.27	0.94	0.00	0.56
1.09	-0.15	-0.32	0.05	-0.84	-0.03	-0.18	-0.18
0.03	0.75	0.36	0.92	0.12	0.95	0.67	0.71
0.03	-1.27	0.16	-0.15	-0.15	-2.08	-1.26	-0.05
0.96	0.01	0.66	0.75	0.78	0.00	0.00	0.92
-0.30	0.16	0.78	-0.08	-0.68	-0.16	-0.04	0.00
0.52	0.71	0.02	0.85	0.17	0.72	0.91	1.00
0.37	-0.08	0.22	1.01	0.61	-0.60	-1.17	0.44
0.72	0.93	0.77	0.29	0.58	0.54	0.18	0.65
-3.65	-6.65	-7.15	-6.25	-4.46	-7.17	-6.27	-6.35
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.35	0.70	0.83	0.68	0.43	0.74	0.74	0.67

The average low-income household in the United States had a household-level HEI of 62.18. Food stamp households have slightly lower means at 60.70, whereas nonparticipant households are slightly higher at 62.74. With regard to components, the lowest overall component score is for fruits (3.60 of 10), and the best component score is for cholesterol (8.33). Food stamp households have lower mean component scores than do low-income nonfood stamp households for all components except dairy, meat, and fat. Food stamp households have lower mean component scores for fruit (they eat too few servings) and for saturated fats (they receive an excessive percentage of calories from saturated fats). These correspond to the highest and lowest values for the general population (12).

Sample means for the independent variables help characterize the groups. The means of the dummy (zero-1) variables reflect the proportion of the population with a particular characteristic, for example, the proportion of female-headed food stamp households is 71 percent, compared with 53 percent of all low-income households and 46 percent of nonfood stamp households. The mean income of food stamp households expressed as percent of the poverty threshold was substantially less than nonfood stamp low-income households (65.71 percent versus 87.93 percent). The average household size in TFP MAEs was 2.13, with food stamp participating households slightly larger at 2.29 than nonfood stamp households, at 2.07. The proportion of food stamp households with at least one member participating in the WIC program is 19 percent. Food stamp households receive food stamps valued at \$34.22 per week, on average.

Regression results for the 11 equations are also shown in table 2. Unlike the means, these regression results are not weighted, since many of the variables used to construct survey weights are included in the equations (8). Estimated regression coefficients are shown for each independent variable for each of the 11 diet quality measures. The level of statistical significance (prob-value) of each estimated regression coefficient is shown directly underneath the coefficient.

Interestingly, regression results indicate that the estimated effect of household income on the diet quality of the sample households was not significant at conventional levels of statistical significance. Recall that average household income as a percent of the poverty threshold for food stamp receiving households was 65.71, substantially lower than that of the nonfood stamp households (87.93).

The estimated coefficient on the food stamp participation variable is interpreted as the effect on the level of the dependent variable (HEI or HEI component) that a food stamp participating household (27 percent of households) with value of food stamp benefits equal to zero would have, other things equal. The estimated coefficient on the food stamp participation variable is negative for the HEI and all components but dairy. However, it is only significant for the HEI at the 0.03 level of statistical significance.

By contrast, the value of food stamps received has a substantial and statistically significant effect on overall diet quality, controlling for other relevant factors. For each additional dollar of food stamps received, the aggregate household HEI score increases by an estimated 0.22 points. At the average weekly food

stamp value of \$34.22, the aggregate household HEI increases 7.5 points, on average. However, since food stamp households “start” at an HEI about 3.86 points lower than similarly situated nonfood stamp households, the net effect of food stamp participation on aggregate household HEI is about 3.7 points,² on average. Not surprisingly, the positive nutritional effect of food stamp participation is larger for higher levels of food stamps, but lower for lesser food stamp benefit values. A break-even point is estimated at \$17.54 per week. That is to say, when weekly household food stamp benefits are at least \$17.54, food stamp participants demonstrate superior diet quality to similarly situated nonprogram participants. At a food stamp value of (\$3.86/.22) \$17.54 per week or lower, food stamp participants have diet quality inferior to nonparticipants. Thirty-two percent of Food Stamp Program participating households received food stamps valued at less than \$17.54 per week. With regard to the HEI components, the value of food stamps received exerts a positive and statistically significant effect on vegetables, dairy, meat, and sodium component scores.

Turning to WIC, results suggest that participation in the WIC program by one or more household members has a very strong positive effect on aggregate household diet quality measures, controlling for other factors. WIC participation alone contributes 23.45 points to the aggregate household HEI score

²The estimated coefficient of 3.86 is significant at the 0.03 level of statistical significance. However, given that no adjustments for survey design effects were made in estimating standard errors of the coefficients, it could be statistically insignificant. In fact, when the HEI equation is estimated independently from those of its components, the estimated coefficient on the food stamp value remains at 0.22 points and is significant, but the food stamp participation dummy variable coefficient is not significant.

(controlling for household size among other variables). This overall effect is distributed about evenly in all diet quality components except for vegetables and saturated fat, where the estimated coefficients are not statistically significant.

The possibility that WIC participation may improve household scores for some diet components not included in the WIC food package, for example, fruits³ and possibly vegetables, is interesting and may be explained in several ways. One is that consumption of the WIC food package (by those for whom it was intended, and possibly their families) improves diet quality scores for the types of foods that it includes, for example, dairy products and grains, as well as frees up food stamps and money income to purchase more of all foods for the household. Another, more general, explanation is that households that participate in the WIC Program are more health and nutrition oriented than are other households, including households receiving only food stamps. Finally, the nutrition education received as part of participation in the WIC Program is likely to improve diet quality through better diet-related behaviors.

Only a minority (34 percent) of low-income households was dual-headed, with food stamp participating households less likely to have both male and female heads (20 percent) than were nonparticipating low-income households (39 percent). Seventy-one percent of food stamp households were headed by a female head only, compared with 46 percent for nonfood stamp households and 53 percent for all low-income households. Compared with female-

headed households, dual-headed households have lower grains scores and higher vegetable scores, on average. Female-headed households have much higher HEI, cholesterol and sodium scores, and somewhat higher fruit and total fat scores than comparable male-headed households.

The mean highest grade of formal schooling completed by the household head was 10.59 years. Food stamp and nonfood stamp households differed little in average years of education. Regression results show that years of education has a positive and statistically significant effect on overall diet quality. Every additional grade completed increases the household HEI score by 0.81 points. Years of education has a small positive effect on fruit, dairy, and cholesterol scores, and a small negative impact on the sodium score.

Thirty-three percent of the food stamp-receiving households were African American, 8 percent were of other race, and the remaining 59 percent were White. The corresponding figures for nonfood stamp households were 19 percent African American, 6 percent other, and 75 percent White. African American households have, on average, a lower household HEI by 5.16 points than comparable White households. They also have lower dairy and higher meat scores than White households. Race does not appear to have significant effects on most of the diet quality component measures.

Hispanic households, at 11 percent of households, have substantially higher HEI scores than non-Hispanic households (4.11 points). They have higher total fat and saturated fat scores, but lower dairy scores than non-Hispanic households.

Geographic location and urbanization status have few statistically significant effects on the HEI and its components. Households in the Midwest (24 percent of food stamp and 27 percent of non-food stamp households) have poorer total fat and saturated fat scores than those in the East. Households in the South (39 percent of food stamp and 44 percent of nonfood stamp households) have lower fruit and dairy scores than those in the East. Households in the Western United States (13 percent of food stamp and 20 percent of nonfood stamp households) have lower vegetable and higher sodium scores than similar households in the Eastern region of the United States.

Households in the suburbs (26 percent of food stamp and 33 percent of non-food stamp households) have better fruit scores, while households in nonmetro areas (25 percent of food stamp and 30 percent of nonfood stamp households) have lower HEI, dairy, cholesterol, and sodium scores than similar households in the central city. Tenancy status has no significant effects on HEI or its components scores. The only exception is for households that rent their dwelling (77 percent of food stamp and 47 percent of nonfood stamp households), which have a better meat score, compared with those households that own their dwelling.

As expected, the control variable for the number of household members with no computable HEI score has an extremely strong and statistically significant negative association with the total HEI score and its components. This control variable is also responsible for the relatively high R-squared values.

³The exception is fruit juice, which is included in WIC packages.

Limitations

Several limitations are relevant when interpreting the results. First, our study is exploratory; however, household production theory and past analyses of the demand for foods or nutrients guided model specification and the selection of variables (8). Thus, the possibility of committing gross errors is reduced. Several problems remain, however. A major limitation is that the Restricted Ordinary Least Squares reduced form specification is used as opposed to a system of simultaneous equations reflecting the usual derived demands for inputs in the household production function, the household production function itself, and the final demand for health and healthy eating.

The range of the dependent variables is constructed between zero and 100 for the HEI and zero and 10 for its components, which may imply the usual estimation problems with linear probability models (9). Because an HEI is not computed for children below the age of 2 years and for infants, they are necessarily excluded from the household aggregates of the dependent variables. This could distort results, to some extent. We did not explicitly account for the survey's clustered design effects on statistical hypothesis testing. Thus, estimated "prob" values between 0.05 and around 0.01 could result in either acceptance or rejection of the null hypothesis, if tested to account for design effects.

As several variables of potential importance in influencing "healthy eating" are not available (for example, taste of particular foods, the present value of future health outcomes, etc.) and, as there may be self-selection relative to

the FSP or WIC participation, the results may well suffer from specification biases.⁴ Despite these limitations, this study provides valuable new insights into the relationship between food assistance program participation and diet quality.

Summary and Conclusions

In this study, we estimated a statistical model using the USDA Healthy Eating Index and its 10 components at the household level as dependent variables to better understand the effects of food assistance program (FSP and WIC) participation and food stamp benefit levels on the diet quality of low-income households (controlling for intervening factors). Independent variables included relevant socioeconomic variables available in the CSFII. As is typical of such studies, selection of independent variables was heavily influenced by their availability. The interpretation of their estimated coefficients can vary substantially depending on the theoretical model the researcher believes is most appropriate for the task at hand. Here, we were broadly guided by well-known household production theory and past research in selection of variables. A novel contribution to the literature is that the HEI and its components aggregated to the household level were the dependent variables. Thus, effects of FSP and WIC participation on a household level measure of the overall diet and, at the same time, its components, could be estimated.

⁴Typically, in situations such as this, a statistical correction for self-selection bias is performed. However, the procedure requires identification of variables that are highly correlated with the decision to participate in the program but not with diet quality. In practice, such variables are not readily available (see reference 4).

Results tend to be in general agreement with previous studies of diets that were based on components of the total diet, mostly nutrient intakes. These results reaffirm the effectiveness of two of the main food assistance programs, the FSP and the WIC in meeting nutritional needs of low-income households, needs that may continue after welfare reform. On average, the estimated effect of Food Stamp Program participation on the overall diet of participating households is positive. The effect increases with increased value of food stamps received, as intended.

In terms of its effect on HEI components, the Food Stamp Program had statistically significant and positive effects on the consumption of vegetables, dairy, and meat products, as well as on sodium component scores. Assuming that able-bodied adults without dependents or immigrants have similar HEI and component consumption responses to food stamp income, removal from the Food Stamp Program would result in a reduction in these scores, unless food stamp income is replaced by earned or other income.

Participation in the WIC Program by household members improved household level HEI scores dramatically. In addition, WIC participation resulted in improved scores for all HEI components except for saturated fat. Positive effects reflect the value and increased availability of in-kind foods found in the WIC food package coupled with beneficial effects of the nutrition education component of the WIC Program.

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Household Food Security in the United States in 1995: Results From the Food Security Measurement Project

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The need for a reliable measure of U.S. hunger and food insecurity has been recognized since the early 1980's. This paper describes the development of such a measure and presents initial findings from data collected for USDA by the Census Bureau. A unidimensional scale of severity, based on survey responses, was used to identify food security status; household weights were then applied to estimate the prevalence of food insecurity and hunger in three designated severity ranges. The large majority of American households (88 percent) were food secure in the year ending April 1995. Hunger was evident in 4.1 percent of all households. The paper concludes with a discussion of future nutrition monitoring and research directions for food security measurement.

Despite the recent economic recovery that has lowered unemployment and poverty rates in the United States, many American families still struggle to meet basic needs. This was the context for Vice President Gore's announcement in September 1997 at the National Summit on Food Recovery and Gleaning of new U.S. Department of Agriculture (USDA) estimates of the extent of food insecurity and hunger in U.S. households. Based on a state-of-the-art measurement

method developed through a broad collaborative effort, the new estimates indicate that nearly 12 million households experienced food insecurity in the 12 months prior to April 1995, while one or more persons in about 4 million of these food-insecure households experienced hunger due to resource constraints during the period. Although efforts to estimate the level of hunger in the United States have been made previously (7,10,28,31,33), the new USDA estimates are the first based

upon specially designed data collected from a large, nationally representative sample and subsequently validated to show strong statistical properties of internal validity and reliability. The new estimates thus represent the first reliable, standard national measure of food insecurity and hunger for the United States.

The availability of a standard national measure of hunger and food insecurity provides a powerful tool for monitoring changes in the food situation of U.S. households. It may be particularly useful in tracking the effectiveness of the Federal Government's efforts through food assistance and food recovery programs to help ensure that all Americans are able to obtain adequate food. In a time of tight Federal budgets and with welfare reform shifting increased responsibility for social welfare to the States, this monitoring function is especially important. This paper provides a brief introduction to the genesis of the new measure, including its conceptual basis and methodology, presents brief summary findings from the baseline estimates for 1995, and discusses implications of the measure for future research on family nutritional and general well-being.

Background

Federal interest in developing a hunger measure can be traced from at least 1984 when the President's Task Force on Food Assistance recognized the distinction between the concept of hunger in the traditional medical usage and a more socially oriented, common-sense meaning. The report noted: "To many people hunger means not just symptoms that can be diagnosed by a physician, it

bespeaks the existence of a social, not a medical, problem: a situation in which someone cannot obtain an adequate amount of food, even if the shortage is not prolonged enough to cause health problems" (23). The Task Force also noted the absence of any reliable measure of hunger in this latter commonly understood meaning and the resulting inability of policymakers to verify or negate claims of increasing hunger. This lack of an accepted standard measure of hunger prevalence was cited by the Task Force as posing a continuing policy conundrum.

After the 1984 Task Force report, State and local researchers increased efforts to develop soundly based survey measures (22). The Food Research and Action Center sponsored and obtained major funding for the Community Childhood Hunger Identification Project (CCHIP) (12,30-32) and researchers at the Cornell University Division of Nutritional Sciences sought to develop independent hunger scales (8,25,26).

At the Federal level, USDA began the process, in the mid 1980's, of analyzing the significance of the single survey question on the adequacy of household food supplies that had been added to its regular national food consumption surveys beginning in 1977 but had not been analyzed in depth (4,11). A similar household food sufficiency question and several others adapted from the CCHIP instrument were included in the Third National Health and Nutrition Examination Survey sponsored by the National Center for Health Statistics (NCHS) (1,6). Finally, the Federal Government's commitment to develop a standardized measure of food insecurity or food insufficiency for the United States

took definitive shape in 1990-92 when USDA's Food and Nutrition Service (FNS)¹ and NCHS were assigned joint responsibility to carry out this task under the Ten-Year Comprehensive Plan for the National Nutrition Monitoring and Related Research Program (NNMRRP) Act of 1990.

FNS took lead responsibility for developing the measures; it established an Interagency Working Group for Food Security Measurement to maintain a collaborative process for the project. As a key part of its conceptual basis, the project adopted the authoritative definitions of food insecurity and hunger developed by a special expert panel convened by the American Institute of Nutrition (AIN) and reported by the Life Sciences Research Office of the Federation of American Societies for Experimental Biology (3). According to these definitions, food insecurity occurs when a household does not have access to enough food, at all times, for an active, healthy life. Hunger, defined as "the painful or uneasy sensation that results from not having enough food" is a potential but not necessary consequence of food insecurity.²

¹FNS was renamed Food and Consumer Service (FCS) in 1994 in the context of broader USDA agency reorganizations. The original name was restored in December 1997.

²For a description of the conceptual basis of the Government's measure, including its debt to the body of prior research and an extensive bibliography of the literature to that point, see reference 5. For further discussion of this conceptual basis and its operationalized form and testing in the Government's new measure, see references 14, 15, and 24. For recent validation studies and related work within the same general approach, see references 2, 13, 16-18, and 21.

Methods

The subsequent operational development of the hunger and food security measure was also a broad-based, cooperative venture. At an early stage, FNS enlisted the expertise of the Census Bureau for developing and administering a national food security questionnaire. In January 1994, FNS and NCHS jointly sponsored a Conference on Food Security Measurement and Research, bringing together a wide range of experts in the field. Participants discussed their previous experiences with measuring hunger and food insecurity and then organized into working groups to provide continuing advice and critique to FNS in developing a baseline draft questionnaire (29).

In the next stage, the Census Bureau worked closely with FNS and its collaborators to analyze, field test, and refine the food security questionnaire. The draft version from the research conference was revised after review by an expert panel convened by the Census Bureau's Center for Survey Methods Research. The questionnaire was field tested and analyzed in the autumn of 1994 (27) and, with some further revision, was administered for the first time as a Supplement to the Current Population Survey (CPS) in April 1995. With minor revisions, the food security supplement was administered with the CPS again in September 1996 and April 1997.

The data collection in April 1995 produced some 45,000 usable interviews. In September 1995, FNS contracted with Abt Associates, Inc. (Abt) to analyze these data in a cooperative venture with FNS staff and other researchers involved in developing the questionnaire. From the beginning,

FNS expected the analysis to produce a scaled measure of food insecurity and hunger that would allow the government to identify households experiencing problems providing adequate food for all members.³ The Abt team was selected because it had developed an innovative analysis design that applied state-of-the-art scaling methods that were used most widely in the educational testing industry. (See reference 15 for technical details of the scale estimation.)

The initial Abt procedure used standard factor analysis techniques to perform a systematic set of exploratory analyses of the 1995 survey results. The preliminary work found that, with one important area of exception, most of the food security indicators in the questionnaire fit a single-dimensional measurement scale. A few items failed to meet the rigorous fit criteria for inclusion and were dropped from the scale. However, one general type of indicator also did not fit the single-dimensional measure of severity of food insecurity: those items dealing with the coping strategies that a food-insecure or at-risk household might engage in to improve its food supply from emergency sources (e.g., getting food from a food bank or borrowing money for food). This is understandable given that all households do not face the same set of choices for coping with an inadequate food supply.

³The choice of household-level as opposed to family-level unit of analysis was due in part to the sampling frame of the Current Population Survey; it also reflects the objective of developing a comprehensive measure encompassing the entire U.S. residential population. In the March 1995 CPS sample, 70 percent of households were family households including two or more persons residing together and related by birth, marriage, or adoption; 20 percent were single-person households; and 5 percent consisted of two or more unrelated persons residing together.

...food insecurity occurs when a household does not have access to enough food, at all times, for an active, healthy life. Hunger, defined as “the painful or uneasy sensation that results from not having enough food” is a potential but not necessary consequence of food insecurity.

Once it was established that a core set of food security and hunger items could be scaled along a single dimension, subsequent analyses used the Rasch model, conceptually the most basic form within the general class of item-response-theory (IRT) statistical scaling models. Initially the Rasch model was applied to a subset of the sample including only households with children. The resulting scale was subjected to further analyses that showed it to be robust for other household types as well. Various reliability indicators were calculated and found to be within accepted ranges.⁴ Item response stability measures for individual items on the scale and for the overall scale were judged to be acceptable by the Census Bureau using data from some 1,100 quality control re-interviews that were performed in the week following the regular April 1995 CPS interviews (20).⁵

⁴A general discussion of potential sources of error in the food security measure is presented in the Summary Report volume (14). More extensive treatment is provided in the Technical Report (15). Based on three traditional measures of reliability (Spearman-Brown's and Rulon's split-half reliability estimates and Cronbach's alpha), the estimated reliability values ranged from .86 to .93 for the 12-month measurement scale. Since the distribution of household scale scores is highly skewed (56.5 percent of sample households passing the income and food security screener had zero score), a further dichotomized split-half test was conducted, collapsing the split-half scales into the dichotomous variable "answered all questions negatively" and "answered one or more questions affirmatively." On this test, the level of agreement between paired subscales was 84.8 percent for households with children and 85.8 percent for households without children, while the corresponding kappa statistic (showing the extent of agreement beyond mere chance) was .70 and .69 for the respective household types.

Table 1. Sequenced items and food security status categories for food security measurement scale

Sequenced questions in scale	Food security status
Q53 Worried food would run out	<i>Food secure</i>
Q54 Food bought didn't last	
Q55 Unable to afford balanced meals	<i>Food insecure</i>
Q58 Child fed few low-cost foods	
Q24 Adult cut size or skipped meals	
Q56 Couldn't feed child balanced meals	
Q32 Adult eat less than felt they should	
Q25 Adult cut size or skipped meals, 3+ months	<i>Food insecure with moderate hunger</i>
Q57 Child not eating enough	
Q35 Adult hungry but didn't eat	
Q38 Respondent lost weight	
Q40 Cut size of child's meal	<i>Food insecure with severe hunger</i>
Q28 Adult not eat whole day	
Q47 Child hungry	
Q29 Adult not eat whole day, 3+ months	
Q43 Child skipped meal	
Q44 Child skipped meal, 3+ months	
Q50 Child not eat for whole day	

The 18 items included in the scale are shown in abbreviated form in table 1 with their original question numbering. The scale items are ordered according to increasing levels of severity. The least severe items (Q53 and Q54) ask whether the household respondent has

worried about or experienced a situation within the past 12 months where food was running out, and there was no money to buy more. Subsequent items indicating experiences or perceptions of inadequate food intake in terms of both quality and quantity (Q32, Q55, Q56, Q57, Q58) fall in the low to intermediate ranges of severity measured by the scale. Items dealing with reduced food intakes and hunger for adults (Q24, Q25, Q35, Q38) fall in the intermediate range of severity measured, and those indicating reduced food intakes and hunger for children in the household (Q40, Q43, Q44, Q47, Q50) or more severe hunger for adults (Q28, Q29) fall at the severe end of the scale. All items refer to the 12-month

⁵In this analysis of response variance, 17 percent of the continuous variables and 9 percent of the categorical questions with enough cases to be analyzed exhibited "low" variance, 75 percent and 68 percent respectively showed "moderate" variance, and 8 percent and 24 percent showed "high" variance. Thus, 76 to 92 percent of the two question types exhibited "low to moderate" response variance while the food insecurity scale overall showed "moderate" response variance. The authors noted, "[t]his distribution is typical of response variance results for households surveys" (20).

period preceding April 1995, and all ask respondents to report only experiences, perceptions, or behaviors that result from a lack of financial resources. Thus, instances of hunger or meals skipped due to dieting, illness, or busy schedules are excluded by design. Each household in the sample received a scale score between zero and 10 under the Rasch measurement model, based on its particular pattern of responses to all 18 items. These detailed household scores indicate the distinct levels of severity of food insecurity experienced by U.S. households across the full range of severity captured by the measure.

The scaled measure provides much greater detail about the nature and extent of this poverty-linked phenomenon than ever before available. However, the very detail of the nearly continuous severity measure makes it inappropriate to serve, in itself, as a useful measure of the prevalence of food insecurity and hunger. For this purpose, several well-defined, broad subranges of severity level need to be designated and a simpler, categorical measure created based on these specified severity ranges.

To provide this second type of measure, FNS worked with Abt and other collaborators to develop a categorical measure that would classify the food security status of households in terms of several broad subranges of the measured severity levels indicated by their scale scores (15). The four designated status categories are illustrated in table 1. Households with complete responses to all 18 items were classified as food secure if the respondent answered affirmatively to fewer than 3 of the 18 questions on the

scale,⁶ while those with 3 or more positive responses were assigned to one of the food-insecure groups. Those with 3 to 7 positive answers were classified as food insecure without evident hunger, those with 8 to 12 as food insecure with moderate hunger, and those with 13 or more as food insecure with severe hunger. Locating the initial threshold (scale cut-point) of each designated severity-range category was done by identifying the second or third item in sequence indicative of the salient conditions characterizing the category.⁷

It should be noted that the main role of the categorical measure is to provide an established, consistent basis for comparison of food insecurity and hunger prevalence over time and across population subgroups. In this sense, the exact placement of the category boundaries (scale-score cutpoints, in operational terms) is a matter primarily of identifying severity-range categories that have relevance to ongoing program objectives and policy discussion. In a deeper sense, locating the category boundaries or thresholds is a matter of identifying the

⁶Two groups of households were classified as food secure on the basis of zero scale scores: higher income households (≥ 185 percent poverty) that were screened from the food security portion of the interview on the basis of consistent negative responses to three broad food security screening questions, and both high- and low-income households that passed the screener but then gave no affirmative response to any food security scale item.

⁷In contrast to the underlying scale estimation, which is fully determined by the measurement model and the data, locating the designated category thresholds involved judgment as to how many indications of a given severity subrange should be present and across how broad a range of measured severity they should be observed.

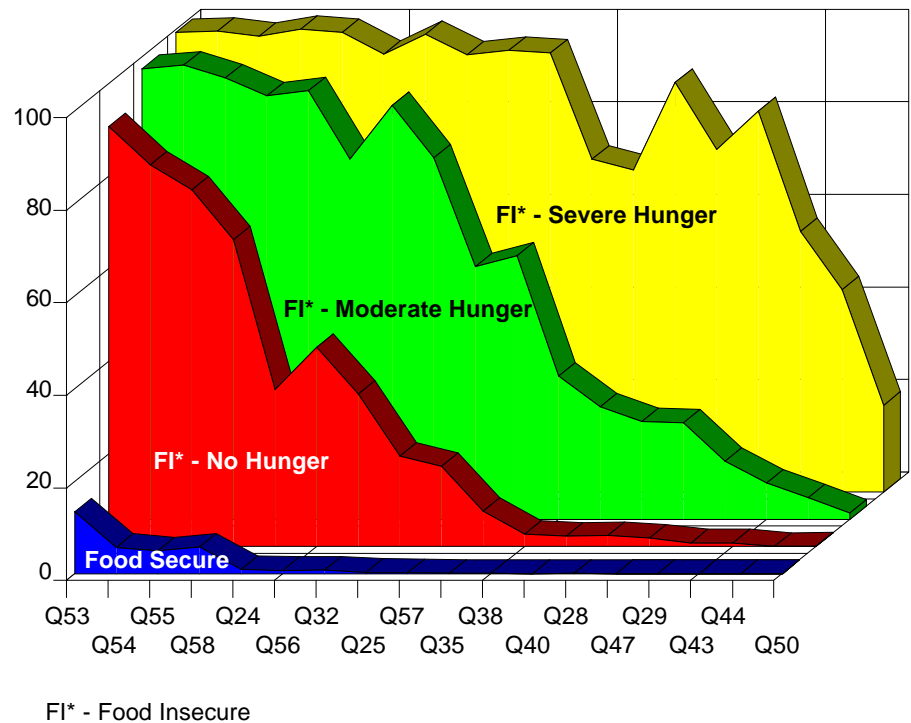
...food insecurity is more prevalent among Black and Hispanic households (almost twice the levels for Whites), households with children, households under the poverty level, and households in central city metropolitan areas.

important distinctions (conceptual and in reality) between the several subranges of severity level encompassed within the full range of food insecurity observed for contemporary U.S. households.⁸

The sequenced pattern of items on the scale reflects the underlying commonality among otherwise diverse households of the conditions and experience of food insufficiency in relation to basic need and the available set of potential household responses to such conditions—what Radimer termed “hunger as a managed process.” In measurement terms, this predominant sequential response pattern means that the typical household answering positively to any given scale item will also have answered affirmatively to all less severe items. For the entire CPS sample, 76 percent of households exhibited this common ordering of responses and were termed the “modal group” of households. While not all the April 1995 respondents followed this common ordering pattern perfectly, most of the non-modal households did not diverge very far from the common pattern.⁹

⁸The names applied to the designated severity level subranges, or food insecurity status categories, are nominal only and intended to reflect U.S. social reality as articulated; for example, in the 1984 President's Task Force Report on Food Assistance. Clearly, the names chosen for relevance to the U.S. context are not intended to suggest, and do not reflect, the much deeper severity ranges of food insecurity and hunger that are relevant to underdeveloped countries subject to famine conditions. In principle, the form of measurement scale developed from contemporary U.S. data could be extended, with a similar data set collected in poorer countries, to encompass the deeper levels of food insecurity and hunger severity experienced in those circumstances within the same unidimensional measurement construct. For a similar food-security scale developed for urban subsistence dwellers in Kampala, Uganda, see reference 19.

Figure 1. Item response patterns for food security status groups



The response patterns for the four food security status groups are illustrated in figure 1 where the questions in the scale are ordered sequentially and the proportion of affirmative responses to each item within each status group is projected onto the vertical axis. Overall, the response pattern shows the expected contrast among the food security status groups.

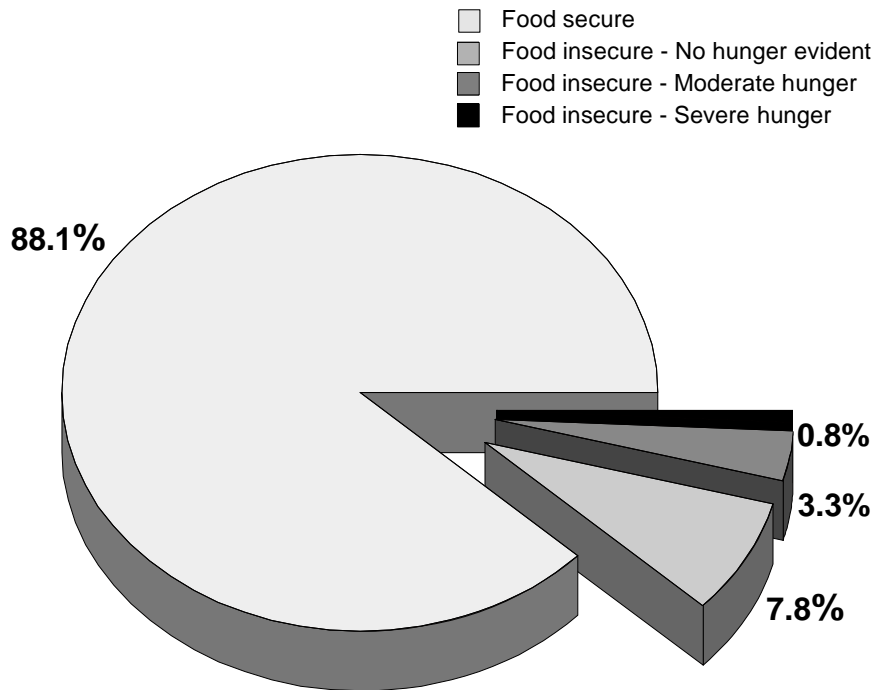
⁹Of those households with at least one positive response to a scale item, the proportion following the modal pattern was only 32 percent for households with children and 48 percent for households without children. Nonetheless, the fit statistics produced in estimating the Rasch model indicate an acceptable degree of conformance of their responses to the modal pattern. Detailed analysis of the non-modal response patterns is one of the areas of research now opened up and expected to be fruitful in helping identify constellations of conditions and behaviors occurring in highly stressed household settings.

Findings

By classifying survey responses according to food security status and applying household weights provided by the Census Bureau, Abt used the supplement data to estimate the prevalence of food insecurity and hunger within the specified severity range categories in the United States for the 12 months preceding the April 1995 survey. As can be seen in figure 2, the large majority of American households (88 percent) were found to be **food secure** in the year ending April 1995.

About 11.9 million (of approximately 100 million) households experienced food insecurity as a consequence of limited resources during that period.

Figure 2. Distribution of U.S. Households, by food security status level, 1995



Most of the food-insecure households were *food insecure without hunger* (7.78 million households), meaning that they reported experiencing concerns about the adequacy of their food supply, substituted cheaper food items, and reduced the quality and variety of their diets, but without significantly reducing food intakes. There were 3.34 million households classified as *food insecure with moderate hunger*, where some reduction in food intake due to inadequate household resources was evident for one or more household members, primarily adults.

An additional 817,000 households were identified as *food insecure with severe hunger*. In these households, reductions in food intake were observed for both children and adults, and one or more of the adults was likely to have experienced an extensive reduction in food intake (i.e., going whole days without food) due to inadequate resources.¹⁰

¹⁰ For the modal household group, children's hunger indicators appear only within the severe hunger range of household level food insecurity measured by the scale. Among the non-modal households, however, children's hunger may appear within other food insecure categories as well. Analysis of the CPS data is continuing to identify the extent of such cases.

Table 2 shows that household food insecurity is more prevalent among Black and Hispanic households (almost twice the levels for Whites), households with children, households under the poverty level, and households in central city metropolitan areas.

The number of households where hunger due to inadequate resources was experienced during the period can be estimated by combining the number of households assigned to the two most severe levels of food insecurity. This yields an overall estimate of 4.16 million households where one or more members experienced some level of hunger in the 12-month period preceding the April 1995 survey.

The number of individuals affected by hunger is not easily extrapolated from these estimates. Because the data were collected in a household survey, homeless individuals are not included. Furthermore, for many households (i.e., those with more than one adult or with more than one child), the structure of the questionnaire does not allow accurate determination of the food security status of each adult or each child in the household. An upper bound for the number of individuals affected by hunger is given by the total population of persons living in those households that were classified into either of the two hunger categories. From the April 1995 survey, this number is 11.2 million individuals, most of them adults.

For most of the food insecure households with children (and for all such households fitting the modal response pattern), the children are not likely to be seriously affected unless the household has reached the overall severity level required to classify it as experiencing food insecurity

Table 2. Prevalence of household food security status, by selected characteristics, 1995

Characteristics	Food secure		Food insecure— without hunger		Food insecure— moderate hunger		Food insecure— severe hunger	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
All households	88,266	88.1	7,783.4	7.8	3,343.3	3.3	816.8	0.8
Household composition								
Household with children under age 18	31,434	82.5	4,676.2	12.3	1,670.6	4.4	331.9	0.9
Household with elderly but no children	26,155	94.1	1,124.1	4.0	436.2	1.6	89.9	0.3
Household with no children or elderly	30,677	89.5	1,983.1	5.8	1,236.4	3.6	394.9	1.2
Race/ethnicity								
White	76,129	90.0	5,653.7	6.7	2,298.1	2.7	534.0	0.6
Black	9,104	75.8	1,779.4	14.8	895.4	7.5	233.8	1.9
Other	3,032	84.6	350.6	9.8	150.1	4.2	49.4	1.4
Hispanic ¹	5,725	74.3	1,360.2	17.7	501.0	6.5	115.6	1.5
Income-to-poverty ratio ²								
Under 0.50	3,240	58.4	1,365.0	24.6	688.4	12.1	270.9	4.9
Under 1.00	10,230	64.7	3,500.7	22.1	1,587.6	10.0	489.5	3.1
Under 1.30	14,841	68.1	4,367.9	20.0	2,032.7	9.3	567.7	2.6
Under 1.85	25,914	73.8	5,952.6	17.0	2,568.0	7.3	680.4	1.9
Over 1.85	62,352	95.8	1,830.8	2.8	775.3	1.2	136.3	0.2
Area of residence								
Central city metropolitan area	20,172	83.9	2,494.4	10.4	1,102.5	4.6	286.5	1.2
Other metropolitan area	33,115	90.5	2,244.3	6.1	976.4	2.7	265.8	0.7
Nonmetropolitan area	20,007	88.0	1,906.2	8.0	802.8	3.4	161.2	0.7
Census geographic region								
Northeast	17,443	89.7	1,335.6	6.9	524.6	2.7	142.6	0.7
Midwest	21,113	89.4	1,614.6	6.8	743.9	3.2	150.9	0.6
South	31,311	87.5	2,959.2	8.3	1,244.6	3.5	285.5	0.8
West	18,399	86.2	1,874.0	8.8	830.3	3.9	237.7	1.1

¹Persons of Hispanic ethnicity can be of any race.²Income and poverty status refer to household income in a recent 12-month period, varying among rotation groups in the CPS sample.

with severe hunger. Thus, a preliminary estimate for the number of children who experienced hunger during the period is given by the number of children living in households classified into the severe hunger category.¹¹ This preliminary approximation indicates that 692,000 children were living in households where severe hunger was experienced in the 12 months prior to the April 1995 survey. (Further information on household and individual estimates can be found in reference 14.)

Discussion

The development of the food security and hunger measures as described here provides the baseline from which the Government can improve its capacity to monitor the food adequacy of U.S. households. As such, the true importance of the estimates can only be known in the future, when consistent comparisons can be made over time against the baseline numbers.

To the extent possible, the new measures are being implemented at the national level by all Federal agencies cooperating in the National Nutrition Monitoring and Related Research Program. USDA plans to continue annual collection of the basic household data needed to replicate the baseline hunger and food security measures through regular supplements to the Current Population Survey. The core set of survey questions needed to

estimate the scaled measures are planned for inclusion in the Fourth National Health and Nutrition Examination Survey (NHANES-IV) and the next round of USDA's Continuing Survey of Food Intakes by Individuals (CSFII), scheduled to be merged with NHANES-IV beginning in the year 2000. The Centers for Disease Control and Prevention, Division of Nutrition (CDC), NCHS, and FNS are working together to test subscales of the 18-item scale that can be used to measure food insecurity and hunger in State surveillance systems such as NCHS's State and Local Area Integrated Telephone Survey and CDC's Pediatric Nutrition Surveillance System.

Food security modules are also planned for the Census Bureau's Survey of Program Dynamics to be fielded for 5 consecutive years beginning in 1998 and the Early Childhood Longitudinal Study being conducted by the U.S. Department of Education, National Center for Educational Statistics. The University of Michigan Panel Survey of Income Dynamics included the food security module in a special supplement on women and children in 1997, and this module is being considered for implementation. FNS has collected food security and household food-use data in a national sample of low-income households. As these data emerge, researchers will begin to expand beyond the basic monitoring function to explore the causation and consequences of household food insecurity and hunger across the various levels of severity at which they are experienced and measured.

Aside from their incorporation in various research settings and the Government's use in nutrition monitoring, the new measures will provide a baseline for assessing food assistance program performance under the requirements of the Government Performance and Results Act. Specifically, USDA has proposed using the number of households experiencing poverty-linked hunger as a performance measure for assessing the extent to which the agency is succeeding in its goal *to enhance food and nutrition security for low-income Americans*.

Finally, ongoing food security and hunger measures will provide a direct measure of unmet need, which may prove useful for researchers interested in exploring alternative measures of material deprivation. While the Census Bureau's annual estimate of the number of households living below the poverty line has been the standard measure of the extent of material deprivation, the poverty measure has been criticized as increasingly inadequate for this task (9). Future explorations of the relationship of food security and hunger measures to other social and economic indicators of basic needs and resources may be fruitful in this area.

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¹¹The estimate is approximate and preliminary for two reasons. First, as noted, the number of children living in households classified to the severe hunger category provides only an upper bound to the number of children experiencing hunger within that category of households. Second, an undetermined number of children living in some of the (non-modal) households classified to the moderate hunger category also experience hunger, but are excluded from the preliminary approximation.

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Do Child Support Awards Cover the Cost of Raising Children?

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A large proportion of the poor in the United States is composed of single mothers and their children. Many of these women receive partial child support payment or none at all. Welfare reform legislation has, therefore, focused on child support payment enforcement. However, the economic well-being of single-parent families can be improved only if child support payments are paid on a regular basis and reflect the cost of raising children. Comparing USDA estimates of expenditures on children with average full child support payments, which represent average child support awards, shows that these full payments cover a small proportion of the total cost of raising children. Therefore, to improve the economic well-being of single-mother families, child support enforcement plus child support awards that reflect the cost of raising children are needed.

A dramatic change in American family life during the past 30 years has been the growth in the number of single-parent families. In 1970, 13 percent of all families with children were headed by a single parent. By 1996, this proportion had climbed to 32 percent (14,17). It is estimated that half of the children in the United States will spend part of their childhood in families headed by a single parent (4)—typically, the mother. Since 1970, single parenthood has become synonymous with poverty. In 1994, the median income of single-parent families headed by a female was less than one-third that of married-couple families with children (17); 53 percent of these female-headed families had income below the poverty threshold (17).

Child support—legally mandated payments from a noncustodial parent to a custodial parent¹—can improve the economic well-being of single-parent families if these payments are paid on a regular basis and reflect the cost of raising children. Given that the recent Welfare Reform Act limits the time single parents are eligible for public assistance, child support is an important way to improve the economic well-being of single-parent families.

¹The custodial parent has primary physical care of a child. It does not necessarily mean the parent has sole legal or sole physical custody. The non-custodial parent does not have primary physical care of a child; although, a child can reside with this parent some portion of the time.

Much of the focus on child support has been on payment enforcement because noncustodial parents often do not make payments. In 1991, of custodial mothers who were due child support, 48 percent received partial payment or none at all (15). The adequacy of child support awards has received much less attention.

Beller and Graham compared 1985 child support awards with the cost of raising children (based on 1972-73 data inflated to 1985 dollars) and found these awards only covered a fraction of the cost of raising children (2). A U.S. Department of Health and Human Services study reviewed a variety of estimates of the cost of raising children and compared them with 1990 State child support guidelines (18). Most State guidelines were within the range of cost estimates; however, these guidelines were at or near the lower bound of these estimates. Pirog-Good compared 1991 State child support awards determined by the guidelines in each State with estimates of the cost of raising children and concluded most State guidelines fell short of this cost (9). The Women's Legal Defense Fund compared 1989-90 State child support guidelines with a standard-of-living measure for children (5). It was found that, in most States, support awards based on the guidelines left children with less than a decent standard of living.

Since 1960, the U.S. Department of Agriculture (USDA) has provided annual estimates of family expenditures on children (often referred to as the cost of raising a child) by family income level. This study examines the adequacy of child support awards by comparing average full child support payments with

USDA's estimates of the cost of raising children. Average full child support payments should reflect total child support awards. This study differs from previous research—it focuses on USDA's estimates of the cost of raising children as a basis for comparison; whereas, other studies use a range of estimates, some of which are outdated. Also, it uses actual child support payments to make this comparison.

The article begins with a brief overview of child support guidelines in the United States, a description of the USDA child-rearing expense estimates, and a comparison of the USDA estimates with other estimates of expenditures on children. The article concludes with a discussion of the policy implications for child support guidelines.

Overview of the U.S. Child Support Guideline System

Before 1984, the use of child support guidelines was limited in many States (21). Child support awards, typically set on a case-by-case basis, varied tremendously among judges (5). This system often resulted in awards that had little rationale (2). The emphasis during this time was on the enforcement of child support payments since a large percentage of single mothers received no payments—a problem that still exists. In 1978, about half of custodial mothers due child support received partial payment or none at all (2). By 1991, this proportion remained almost unchanged at 48 percent (15). Title IV-D of the 1975 Social Security Act made the Federal Government an overseer of child support collection; although, the daily work of collecting child support remained a State responsibility.

The Child Support Enforcement Amendments of 1984 were primarily aimed to improve the collection of child support. These amendments required States to (1) use automatic wage withholding to collect overdue child support, (2) use expedited legal processes to establish and enforce support orders, (3) collect overdue support by intercepting State income tax refunds, and (4) initiate a process for imposing liens against real and personal property for nonpayment of child support. The amendments also required States to set numeric child support guidelines and to make these guidelines available to officials in charge of setting the level of child support. The amendments, however, did not require that these guidelines be binding.

The Family Support Act of 1988 required States to implement presumptive rather than advisory child support guidelines. It stipulates that these guidelines are to be followed unless their application would be unjust or inappropriate. In addition, States are required to review their guidelines every 4 years to ensure that their application results in appropriate child support award amounts and to consider economic data on the cost of raising children in this review. This act, for the first time, requires States to establish child support guidelines and to use them as the basis of child support awards.

The welfare reform bill (Personal Responsibility and Work Opportunity Reconciliation Act of 1996) also contained major child support enforcement provisions as receipt of child support and dependency on public assistance are typically inversely related. Overall, child support legislation has primarily dealt with better enforcement of such support. This emphasis is not surprising given the large percentage of custodial parents who receive no child support. However, the enforcement of child support will significantly improve the economic situation of single-parent families only if the awards reflect child-rearing expenses or the cost of raising children.

USDA Estimates of Expenditures on Children by Families

Methodology

Since 1960, USDA has provided annual estimates of expenditures on children from birth through age 17 by married-couple and single-parent families.² These expenditures on children are estimated for the major budgetary components: Housing, food, transportation, clothing, health care, child care/education, and miscellaneous goods and services (personal care items, entertainment, etc.). The latest child-rearing expense estimates are based on the 1990-92 Consumer Expenditure Survey (CE) updated to 1996 dollars using the Consumer Price Index (CPI). The CE is the only Federal

²The administrative report has a detailed description of the USDA methodology used to estimate child-rearing expenses and a discussion of the expenses (6).

Milestones in Federal Legislation Regarding Child Support Guidelines

1975: Title IV-D of the Social Security Act:

The U.S. Department of Health and Human Services (then named the U.S. Department of Health, Education, and Welfare) is given primary responsibility for "... establishing standards for State (child support) program organization, staffing, and operation to assure an effective program." However, primary responsibility for operating the child support enforcement program "... is placed on the States pursuant to the State plan."

1984: Child Support Enforcement Amendments:

States were required to "... formulate guidelines for determining appropriate child support obligation amounts and distribute the guidelines to judges and other individuals who possess authority to establish obligation amounts." The amendments, however, did not require judges and other officials to follow these child support guidelines.

1988: Family Support Act of 1988:

Judges and other officials are required to "... use State guidelines for child support unless they are rebutted by a written finding that applying the guidelines would be unjust or inappropriate in a particular case." States are also required to "... review guidelines for awards every four years" and to consider economic data on the cost of raising children in this review.

1996: Personal Responsibility and Work Opportunity Reconciliation Act:

This act strengthened child support enforcement provisions given the link between receipt of child support and welfare dependency.

Source: U.S. Department of Health and Human Services, Administration for Children and Families, Office of Child Support Enforcement. 1994. Child Support Enforcement Nineteenth Annual Report to Congress.

survey of household expenditures collected nationwide. It collects information on sociodemographic characteristics, income, and expenditures of a nationally representative sample of households.

The methodology employed by USDA to estimate child-rearing expenses specifically examines the intrahousehold distribution of expenditures using data for each budgetary component. The CE contains child-specific expenditure data for some budgetary components (clothing and child care/education) and household level data for other budgetary components.

Multivariate analysis is used to estimate household and child-specific expenditures. Income level, family size, and age of the younger child are controlled for so estimates can be made for families with these varying characteristics (regional estimates are also derived by controlling for region).

Estimated household and child-specific expenditures are allocated among family members (e.g., in a married-couple, two-child family: the husband, wife, older child, and younger child). Since the estimated expenditures for clothing and child care/education only apply to children, these expenses are allocated by dividing them equally among the children.

Because the CE does not collect expenditures on food and health care by family member, data from other Federal studies are used to apportion these budgetary components to a child by age. The USDA food plans are used to allocate food expenses among family members. These plans, derived from a national food consumption survey, show the share of food expenses attributable to individual family members by age and household income level. These members' food budget shares are applied to estimated household food expenditures to determine food expenses on a child. Health care expenses are allocated to each family member based on data from the National Medical Expenditure Survey. This survey contains data on the proportion of health care expenses attributable to individual family members. These members' budget shares for health care are applied to estimated household health care expenditures to determine expenses on a child.

Unlike food and health care, no authoritative base exists for allocating estimated household expenditures on housing, transportation, and other miscellaneous goods and services among family members. Two common approaches used to allocate these expenses are the per capita and the marginal cost methods. The marginal cost method measures expenditures on children as the difference in expenses between couples with children and equivalent childless couples. This method depends on development of an equivalency measure; however, there is no standard measure. Various measures have been proposed, each yielding different estimates of expenditures on children. Also, the marginal cost approach assumes—without much basis—that the difference in total expenditures between couples with and without children can be attributed solely to the children in a family. In addition, couples without children often buy homes larger than they need in anticipation of children. Underestimates of expenditures on children can result when these couples are compared with similar couples with children.

For these reasons, USDA uses the per capita method to allocate housing, transportation, and miscellaneous goods and services among household members. This method allocates expenses among household members in equal proportions. Although the per capita method has limitations, they are considered less severe than those of the marginal cost approach. In implementing the per capita method, it should be noted that for homeowners, housing expenses do not include mortgage principal payments; in the CE, such payments are considered to be part of savings. Also, because work-related transportation expenses are not directly child specific, these costs are excluded when estimating children's transportation expenses.

Estimated Child-Rearing Expenditures

Estimates of 1996 family expenditures on the younger child in husband-wife households with two children for the overall United States are shown in table 1. Expenses on children vary considerably by household income level. Depending on the age of the child, the annual expenses range from \$5,670 to \$6,740 for families in the lowest income group (1996 before-tax income less than \$34,700), from \$7,860 to \$8,960 for families in the middle-income group (1996 before-tax income between \$34,700 and \$58,300), and from \$11,680 to \$12,930 for families in the highest income group (1996 before-tax income more than \$58,300).³ On average, households in the lowest income group spend 28 percent of their before-tax income per year on a child, those in the middle-income group, 18 percent, and those in the highest income group, 14 percent.

Housing accounts for the largest share of total child-rearing expenses. Based on the average for the six age groups, housing accounts for 33 to 37 percent of child-rearing expenses, depending on income. Food is the second largest average expense on a child for families regardless of income level, accounting for 15 to 20 percent of child-rearing expenses. Transportation is the third largest child-rearing expense, making up 14 to 15 percent of child-rearing expenses across income levels. Expenditures on a child are lower in the younger age categories and higher in the older age categories.

³The estimates are based on all households, including those with and without specific expenses. So, for some families their expenditures may be higher or lower than the mean estimates, depending on whether they incur the expense or not. This particularly applies to child care/education for which about 50 percent of families in the study had no expenditure.

This held across income groups. Expenses for the various budgetary components varied by each age group. Food expenses were highest for teenagers, whereas child care expenses were one of the largest expenses for preschoolers.

Additional analysis found that, on average, the expenses depicted in table 1 also reflect those on the older child in a given age category in a two-child family. However, compared with expenditures for each child in a two-child family, husband-wife households with one child spend an average of 24 percent more on the single child, and those with three or more children spend an average of 23 percent less on each child. This is due to family income being spread over fewer or more children and diseconomies or economies of scale. For example, a middle-income family with one child age 6-8 spends \$10,080 on the child, a middle-income family with two children ages 6-8 and 15-17 spends \$17,090 on the children, and a middle-income family with three children ages 6-8, 12-14, and 15-17 spends \$19,960 on the children. For child-rearing expense estimates by region and for single-parent households, see Lino (6).

USDA Child-Rearing Expense Estimates Compared With Other Estimators

Among other estimators used to determine child-rearing expenses, the Engel and Rothbarth estimators are two of the most commonly used. Both of these estimators are marginal cost approaches—expenses on children are gauged as the difference between expenses of couples with children and equivalent childless couples. This difference is thought to represent additional or marginal expenditures that couples make on a child. The

two estimators use different equivalency scales, however, to compare the expenditures of couples with and without children.

The Engel estimator (based on the work of Engel in the 19th century, see DHHS (18) for a description of Engel's work) assumes that if two families spend an equal percentage of their total expenditures on food, they are equally well-off. The Rothbarth estimator (based on the work of Rothbarth in the 1940's, see Rothbarth (10)) uses the level of excess income available to people after necessary expenditures on family members are made as the equivalency measure. Rothbarth's definition of excess income includes luxuries (alcohol, tobacco, entertainment, and sweets) and savings. Both estimators have limitations, as previously explained. Each assumes a "true" equivalency measure. However, in the economics literature, neither of the equivalency measures has been validated as the "true" measure. Also, the marginal cost estimators do not provide direct estimates of how much is spent on a child. They estimate how much money families with children must be compensated to bring the parents to the same utility level (as gauged by an equivalence scale) of couples without children—this is a different question from "how much do parents spend on children?"

According to Barnow, an economist who studied the issue of estimating expenditures on children, "... while they [the Engel and Rothbarth estimators] undoubtedly yield biased estimates of the true level of expenditures made on behalf of children, the direction of the bias is believed to be known" (1). He makes the argument that "... the Rothbarth estimator is likely to provide

Table 1. Estimated annual expenditures* on a child by husband-wife families, overall United States, 1996

Age of child	Total	Housing	Food	Transportation	Clothing	Health care	Child care and education	Miscellaneous [†]
Before-tax income: Less than \$34,700 (Average=\$21,600)								
0-2	\$5,670	\$2,160	\$810	\$720	\$370	\$390	\$660	\$560
3-5	5,780	2,140	900	700	360	370	740	570
6-8	5,900	2,060	1,160	810	400	420	440	610
9-11	5,940	1,860	1,380	880	450	460	270	640
12-14	6,740	2,080	1,450	1,000	750	470	190	800
15-17	6,650	1,680	1,570	1,340	670	500	310	580
Total	\$110,040	\$35,940	\$21,810	\$16,350	\$9,000	\$7,830	\$7,830	\$11,280
Before-tax income: \$34,700 to \$58,300 (Average=\$46,100)								
0-2	\$7,860	\$2,930	\$960	\$1,080	\$440	\$510	\$1,080	\$860
3-5	8,060	2,900	1,110	1,050	430	490	1,200	880
6-8	8,130	2,830	1,420	1,170	470	560	770	910
9-11	8,100	2,630	1,670	1,240	520	600	500	940
12-14	8,830	2,840	1,680	1,350	880	610	370	1,100
15-17	8,960	2,440	1,870	1,710	780	640	630	890
Total	\$149,820	\$49,710	\$26,130	\$22,800	\$10,560	\$10,230	\$13,650	\$16,740
Before-tax income: More than \$58,300 (Average=\$87,300)								
0-2	\$11,680	\$4,650	\$1,280	\$1,510	\$580	\$580	\$1,630	\$1,450
3-5	11,910	4,620	1,450	1,480	560	560	1,780	1,460
6-8	11,870	4,550	1,740	1,600	620	640	1,220	1,500
9-11	11,790	4,350	2,030	1,670	670	690	850	1,530
12-14	12,620	4,570	2,130	1,780	1,110	690	650	1,690
15-17	12,930	4,160	2,240	2,160	1,010	730	1,150	1,480
Total	\$218,400	\$80,700	\$32,610	\$30,600	\$13,650	\$11,670	\$21,840	\$27,330

* Estimates are based on 1990-92 Consumer Expenditure Survey data updated to 1996 dollars using the Consumer Price Index. The figures represent estimated expenses on the younger child in a two-child family. Estimates are about the same for the older child, so to calculate expenses for two children, figures should be summed for the appropriate age categories. To estimate expenses for an only child, multiply the total expense for the appropriate age category by 1.24. To estimate expenses for each child in a family with three or more children, multiply the total expense for each appropriate age category by 0.77. For expenses on all children in a family, these totals should be summed.

† Miscellaneous expenses include personal care items, entertainment, and reading materials.

a lower bound estimate of actual expenditures on children, while the Engel estimator is likely to provide an upper bound.” The precise magnitude of the overestimate of the Engel estimator or the underestimate of the Rothbarth estimator is unknown. Barnow states the Engel estimator yields results too high to be believed so recommends the Rothbarth estimator be slightly increased to determine child-rearing expenditures (1).

How do child-rearing expense estimates derived from the Engel and Rothbarth estimators compare with the USDA estimates? Table 2 shows this comparison by number of children and total household expenditures. The results for the Engel and Rothbarth estimators are from a U.S. Department of Health and Human Services study (18) that estimated child-rearing expenses by married couples based on the 1980-87 CE; this study contains the most recent child-rearing expense estimates using the Engel and Rothbarth approaches.

The USDA estimates are based on the 1995 study. The comparison is based on child-rearing expense estimates as a percentage of total family expenditures; hence, the estimates did not have to be converted into real dollars. For the USDA estimates, average expenditures of families in each income group (as derived from the CE data) were used to make the percentages comparable to those from the DHHS study.

The Engel and Rothbarth methods yield varying child-rearing expense estimates that differ as much as 20 percentage points for a family with three children. So when using the marginal cost method in estimating expenditures on children, the choice of an equivalency measure

Table 2. Average percent of household expenditures attributable to children in husband-wife families

	Estimator		
	Engel ¹	Rothbarth ¹	USDA ²
	<i>Percent</i>		
Number of children			
One	33	25	26
Two	49	35	42
Three	59	39	48
Household expenditure level ³			
Low	49	36	45
Average	49	36	42
High	49	35	39

¹Percentages for these estimators are taken from the U.S. Department of Health and Human Services, 1990.
²Percentages are from the 1995 USDA study. Average expenditures of families in each income level were used to make comparisons. Percentages by number of children are based on average expenditures of middle-income families.
³Percentages by household expenditure level are for a family with two children.

is obviously critical since different measures yield different results. If the Rothbarth technique is a lower bound estimator of child-rearing expenses and the Engel technique is an upper bound estimator as Barnow believes, this gives credence to the USDA estimates of child-rearing expenses—they are between those produced by the Engel and Rothbarth techniques. For families with one child and for families with a high expenditure level, the USDA estimates are closer to the Rothbarth estimates, whereas for families with a low expenditure level, the USDA estimates are closer to the Engel estimates. For families with two or more children and for families with an average household expenditure level, the USDA estimates are about in the middle of the Rothbarth and Engel estimates.

It is sometimes argued that the USDA method overestimates child-rearing expenses since the per capita method is used to allocate housing, transportation, and miscellaneous expenses among household members. These three budgetary components account for about 60 percent of the child-rearing costs calculated by USDA. One study argues that child-related housing expenses should be measured as the difference in rent between one- and two-bedroom apartments (3). This argument assumes all children will reside in rental property.

Housing expenses on an only child in a lower income and middle-income family for the overall United States are estimated by USDA to be about \$205 and \$285 per month, respectively, in 1996. This includes the cost of shelter, utilities,

furnishings, home insurance, and appliances. According to the Census Bureau, the difference in median rental price between an efficiency/one-bedroom housing unit and a two-bedroom housing unit in the overall United States was about \$100 per month in 1996 dollars (16). This does not include utility costs for many units, furnishings, insurance, or appliances. Also, the USDA child-rearing housing expense includes home owners' and renters' expenses; housing costs for homeowners are typically higher than the costs for renters because owned housing usually has more space than does rental housing.

The USDA child-rearing expenses do not include work-related transportation expenses. These expenses were calculated to be 40 percent of total transportation expenses. Miscellaneous expenses include expenditures on personal care (e.g., toothpaste and haircuts), entertainment (e.g., video cassettes and toys), and reading material (e.g., newspapers and books). Many of the miscellaneous goods and services are child-oriented so a per capita approach is reasonable in allocating these expenses. Based on some of the goods and services that are included in this category, it could be argued that children use more than a per capita share of these expenses. Therefore, it is unlikely that the USDA child-rearing estimates grossly overestimate expenditures on children for housing, transportation, and miscellaneous goods and services.

Table 3. Average full child support payments, household expenditures on children, and percentage of child-rearing expenditures covered by full payments, by income group and number of children, 1991

Number of children	Full child support payments	Household expenditures on children ¹		
		Low income	Middle income	High income
1	\$2,776	\$6,022 (46%)	\$8,395 (33%)	\$11,789 (24%)
2	\$4,220	\$10,103 (42%)	\$14,085 (30%)	\$19,779 (21%)
3	\$4,277	\$11,878 (36%)	\$16,560 (26%)	\$23,255 (18%)
4 or more	\$4,901	\$15,877 (31%)	\$22,135 (22%)	\$31,083 (16%)

¹Child-rearing expenses are for husband-wife households.

Note: Numbers in parentheses are the percentage of child-rearing expenditures covered by full child support payments.

Sources: Scoon-Rogers, L. and Lester, G.H., 1995, *Child Support for Custodial Mothers and Fathers: 1991, Current Population Reports, Consumer Income, Series P60-187, U.S. Department of Commerce, Bureau of the Census (11)* and U.S. Department of Agriculture, Agricultural Research Service, Family Economics Research Group, 1992, *Expenditures on a Child by Families, 1991 (13)*.

USDA Child-Rearing Expense Estimates Compared With Child Support Awards

How do the USDA child-rearing expense estimates compare with average child support awards? Are these awards adequate in terms of the cost of raising children? The U.S. Bureau of the Census periodically publishes a child support report. The most recent report contains information on mean child support income in 1991 for custodial parents receiving full payment from noncustodial parents by number of children (11). Full child support payments should reflect the total child support award. The Census estimates are for all families of which

middle-income families are likely the norm. Table 3 compares 1991 full child support payments from noncustodial parents with the 1991 USDA child-rearing expense estimates for low-, middle-, and high-income households by number of children (13).

If each parent equally shares child-rearing expenses, average full payment of child support should cover half the cost of raising children. Full child support payments should not reflect total expenditures on children as this expense is divided between the custodial and non-custodial parent. As seen in table 3, these payments cover less than 50 percent of the cost of raising children regardless of income group.

Table 4. Average full child support payments, household expenditures on children (excluding health care and child care/education expenses), and percentage of child-rearing expenditures covered by full payments, by income group and number of children, 1991

Number of children	Full child support payments	Household expenditures on children ¹		
		Low income	Middle income	High income
1	\$2,776	\$5,177 (54%)	\$7,176 (39%)	\$9,967 (28%)
2	\$4,220	\$8,685 (49%)	\$12,039 (35%)	\$16,721 (25%)
3	\$4,277	\$10,211 (42%)	\$14,155 (30%)	\$19,660 (22%)
4 or more	\$4,901	\$13,648 (36%)	\$18,919 (26%)	\$26,277 (19%)

¹Child-rearing expenses are for husband-wife households.

Note: Numbers in parentheses are the percentage of child-rearing expenditures covered by full child support payments.

Sources: Scoon-Rogers, L. and Lester, G.H., 1995, *Child Support for Custodial Mothers and Fathers: 1991, Current Population Reports, Consumer Income, Series P60-187, U.S. Department of Commerce, Bureau of the Census (11)* and U.S. Department of Agriculture, Agricultural Research Service, Family Economics Research Group, 1992, *Expenditures on a Child by Families, 1991 (13)*.

Only in low-income households with one and two children do full child support payments exceed 40 percent of child-rearing expenses. For middle-income families, to which the full child support payments most likely apply, these payments by noncustodial parents covered 22 to 33 percent of child-rearing expenses, depending on the number of children. As number of children increases, child support payments become less adequate. This holds for all income groups.

Some State child support awards do not include health care or child care/education expenditures; these expenses are treated as an addition to the numeric awards. Even comparing the USDA child-rearing expense estimates

excluding these two expenses with full child support payments (table 4), the payments still generally cover less than 50 percent of child-rearing expenses. This held for most households by income group and number of children. For middle-income families, child support payments by the noncustodial parent covered 26 to 39 percent of child-rearing expenses, depending on number of children.

The above analyses assume custodial and noncustodial parents equally share child-rearing expenditures. This typically is not the case—child support awards are usually determined by the combined income of the parents with the non-custodial parent paying an amount in

proportion to his or her income (such an approach is termed an “income shares model”). Given that fathers' income are usually higher than mothers' income, under this system, custodial mothers (the vast majority of all custodial parents) would be responsible for a lower proportion (less than 50 percent) of child-rearing expenditures and noncustodial fathers responsible for a higher proportion. The proportion of child-rearing expenses covered by the average noncustodial parent should therefore be higher than the 50 percent assumed in the previous analyses. Thus, mean child support payments by noncustodial parents are even less adequate.

Overall, State child support awards did not adequately reflect the cost of raising children in 1991. This finding concurs with previous research. There have been changes in child support awards since 1991, particularly as the Family Support Act of 1988, which establishes numeric child support guidelines, takes effect on new child support awards. The Census report examining full child support payments for 1994 was not available at the time this study was undertaken. When available, 1994 full child support payments can be compared with USDA child-rearing expense estimates to determine whether these payments better reflect the cost of raising children. Also, a particular State's child support guidelines can be compared with the USDA child-rearing expense estimates to determine the adequacy of that State's guidelines. These analyses were beyond the scope of this report.

Conclusion

The issue of child support has recently received considerable attention from Federal and State policymakers. Child support enforcement is a key part of welfare reform because a large proportion of welfare recipients are single mothers with children, and a large proportion of child support payments are not made. Although child support legislation has emphasized the enforcement of child support payments, these payments will be effective only if child support awards reflect the cost of raising children. Child support enforcement and child support awards that reflect the cost of raising children are, therefore, vitally linked to improving the economic well-being of children in single-parent families.

During their 4-year review of child support guidelines, States are required by Federal regulations to consider economic data on the cost of raising a child. A 1996 study by the U.S. Department of Health and Human Services found that less than one-half of the States responding to its survey complied with this Federal mandate when revising their child support guidelines (20).

Some believe that better child support enforcement and awards more in line with the cost of raising children would have little affect on single mothers and their children because of one problem: noncustodial fathers are unable to pay such support. A 1996 study generally found otherwise (12). The study found that noncustodial fathers had a significantly higher standard of living than custodial mothers. On average, noncustodial parents spent 7 percent of

their before-tax income on child support in 1990; this includes fathers who do not pay child support. Among noncustodial fathers who pay child support, 60 percent spend less than 15 percent of their income on child support. The average payer provided about \$3,400 in child support for two children in 1990. It was estimated that noncustodial fathers actually paid between \$14 and \$15 billion in child support in 1990 and that they could have paid between \$30 and \$34 billion more.

A 1997 study supported this finding when it concluded that fathers on average are able to pay nearly five times more in child support than they pay (7). Another study found that 16 to 33 percent of young noncustodial fathers (ages 18-34) had problems paying child support because of lack of income (8). More flexible child support orders are proposed for these fathers.

Original child support guidelines in many States were based on older child-rearing expense studies that yielded relatively low child-rearing expense estimates. Periodic revisions of child support guidelines need to reflect current estimates of the cost of raising children. By doing so, child support awards can improve the economic well-being of children in single-parent families.

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Child Care and Welfare Reform

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The Welfare Reform Act establishes mandatory work requirements. Because of this, the law also contains child care provisions. This review article describes the child care provisions of the act. It addresses some of the issues related to these provisions and highlights selected State initiatives in this area.

The Personal Responsibility and Work Opportunity Reconciliation Act of 1996, more commonly known as the Welfare Reform Act, was a far-reaching piece of legislation. The law eliminated Aid to Families with Dependent Children (AFDC), Job Opportunity and Basic Skills (JOBS), and Emergency Assistance programs. It replaced these programs with the Temporary Assistance for Needy Families (TANF) program, which provides time-limited Federal assistance to people through block grants to States.

The legislation sets a timetable that States must follow to reduce their welfare rolls and establishes mandatory work requirements. Because of these work requirements, the law also contains child care provisions. Under the previous system, people who left the welfare ranks to enter the workforce often were worse-off due to low pay and high child care costs. Because many welfare recipients have children, what the Welfare Reform Act stipulates regarding child care is very important, especially given the work requirements for parents contained

in the act. This review article describes the child care provisions of the Welfare Reform Act, discusses some of the issues related to these provisions, and describes selected State initiatives in this area.

What the Welfare Reform Act Says About Child Care

The Welfare Reform Act establishes a single child care block grant—the Child Care and Development Fund (CCDF)—consolidating four major previous child care programs. Previous programs were (1) Child care for AFDC recipients who participate in the JOBS program (the Federal employment, training, and education program for AFDC recipients), (2) Transitional Child Care for families who are no longer eligible for cash welfare due to income, (3) At-Risk Child Care for low-income working families likely to become eligible for cash welfare assistance in the absence of child care benefits, and (4) the Child Care and Development Block Grant. The first three programs are sometimes referred to as Title IV-A child care programs.

...parents on or moving off of welfare are no longer guaranteed child care assistance....

The legislation provides up to \$2.97 billion in Federal funding for the CCDF in fiscal year 1997, an increase of about \$600 million (27 percent) above what would have been allocated under the previous welfare system (3). The CCDF contains three types of funding: Mandatory, matching, and discretionary. Mandatory funding serves as a State's base amount and totals \$1.2 billion in fiscal year 1997. No State matching is needed to access these funds. Allocations of these funds to each State are based on the highest amount of Title IV-A child care funding a State received for fiscal year 1994, fiscal year 1995, or the average for fiscal year 1992-94.

Matching funds, which amount to \$0.77 billion in fiscal year 1997, are available to States that maintain their historic level of Title IV-A child care spending. State child care expenditures above this level are matched by Federal dollars up to the State's allocated share of these funds. The maximum allocations to each State are based on the State's percentage of children under age 13.

As for discretionary funds, the law authorizes \$1 billion annually for the next 6 years—starting with \$1 billion in fiscal year 1997. Because these funds are subject to annual appropriations, they are not guaranteed. The funds are distributed to States according to the previous rules of the Child Care and Development Block Grant funds. These rules base State allocations on the State's percentage of children who are under age 5, the number of children receiving free or reduced-price school lunches, and a State's average per capita income.

A minimum of 70 percent of a State's mandatory and matching funds must be used to provide child care assistance to families on welfare, families attempting to transition off of welfare, and those at risk of becoming welfare dependent. This is not surprising given the work requirements for welfare recipients mandated by the welfare reform legislation (see box, p. 43). However, parents on or moving off of welfare are no longer guaranteed child care assistance, as funding is capped each year. A large proportion of the remaining child care funds must be used to assist low-income working families. Families earning up to 85 percent of a State's median income are eligible for child care assistance.

States are required to have a single governmental or nongovernmental agency administer the child care fund, and their administration costs are limited to 5 percent of the funds. Many services, however, are defined as nonadministrative, including resource and referral services. Between 1 and 2 percent of mandatory and discretionary child care funds are reserved for American Indian tribes and tribal organizations.

The legislation contains a number of other stipulations. It authorizes a minimum 4-percent set-aside of CCDF funds for "quality" provisions. These provisions include comprehensive consumer education for parents and the public and activities that improve the quality and availability of child care, such as resource and referral services. States are required to provide child care assistance on a sliding fee scales—the lower one's income the greater the level of assistance.

Work requirements under the Welfare Reform Act

Fiscal year	All families		Two-parent families	
	Participation rate	Required hours per week	Participation rate	Required hours per week
	<i>Percent</i>		<i>Percent</i>	
1997	25	20	75	35
1998	30	20	75	35
1999	35	25	90	35
2000	40	30	90	35
2001	45	30	90	35
2002	50	30	90	35

Source: National Conference of State Legislatures (5).

Under the Welfare Reform Act's TANF program, States were required to place at least 25 percent of adult participants in work activities for a minimum of 20 hours per week in fiscal year 1997. Part of the requirement may be fulfilled by educational enrollment. These work participation rate requirements rise annually, peaking at 50 percent in fiscal year 2002. Required hours of work per week for participants also rise over time to 30 hours in fiscal year 2002. Required work participation rates are much higher for two-parent families; at least one parent is expected to work.

States can exempt single parents with children under age 1 from work requirements and exclude them from rate calculations; they can also reduce required work hours for parents with children under age 6. If a State fails to meet the work participation requirements, it will incur a penalty of up to 5 percent of its TANF block grant. The penalty increases by up to 2 percentage points each year the State fails to meet the requirements, to a maximum of 21 percent.

States should have less difficulty meeting the work participation requirements of the Welfare Reform Act in the early years. Contributing factors are the economy and a State's ability to count recipients' educational activities as work. However, counting recipients' educational activities will be phased out, and more importantly, good economic conditions may not continue. If economic conditions decline, it will be more difficult for States to meet the work participation requirements. One group of experts said, "States could incur financial penalties at a time when they are most in need of resources to pay benefits, create jobs, and provide child care" (5).

The legislation gives States greater flexibility in determining reimbursement rates. It eliminates the requirement under the previous system that States pay for child care costs up to the rates charged by the 75th percentile of child care providers, subject to statewide limits. Also, the requirement that payments take into account differences in the costs of providing child care in different settings and for children of different ages is abolished. As under the previous system, the new law addresses health and safety requirements in child care settings regarding the control of infectious diseases, safety of physical premises, and minimum health and safety training. In addition, changes are made to the Child and Adult Care Food Program (CACFP) (see box, p. 44).

Although the welfare reform legislation contains mandatory work requirements for welfare recipients, it allows States to limit the required hours of work to 20 hours per week for parents with a child younger than age 6. States are prohibited from reducing or terminating assistance to a single custodial parent—of a child younger than age 6—who does not work because child care is unavailable. Although the law allows States to define the unavailability of child care, this unavailability is usually related to distance, suitability and appropriateness, and affordability. States may also exempt mothers of infants younger than age 1 from work requirements.

The Welfare Reform Act contains two other provisions that affect child care funds—although in opposite directions. First, given the strong link between work and child care, the legislation allows States to transfer up to 30 percent of money from their State Family Assistance Grant, which funds the TANF program, to fund child care activities for TANF

recipients. This provision could add up to \$4.9 billion in funding for child care assistance to the approximately \$3 billion provided by CCDF in fiscal year 1997 (3). Second, the Welfare Reform Act reduces funding for the Title XX Social Services Block Grant by 15 percent per year over the 1996-2002 period. This affects child care assistance because part of this block grant may be used to fund such care. In fiscal year 1997, Title XX Social Services Block Grant funding was reduced from about \$3 billion to \$2.6 billion; the resulting reduction in State child care funding is unknown, although most States have used Title XX money to fund child care (3).

Review of the Welfare Reform Act's Child Care Provisions

The child care provisions of the Welfare Reform Act should result in some savings from consolidating Federal child care funding into one block grant. States are now allowed to streamline child care services under one administrative structure, whereas in the past, different programs had different rules, regulations, and objectives. There may also be better opportunity to coordinate welfare-related child care programs with State preschool and Head Start programs than was the case in the past (4).

The work requirements of the Welfare Reform Act will cause a substantial increase in the demand for child care. Under the TANF program, States must place at least 25 percent of adult participants in work activities for a minimum of 20 hours per week during the 1997 fiscal year. By the year 2002, this participation rate rises to 50 percent. If States fail to meet work participation requirements, they are penalized up to 5 percent of their TANF block grant.

The Welfare Reform Act and the Child and Adult Care Food Program

The Welfare Reform Act changed the Child and Adult Care Food Program (CACFP), which provides nutrition-related reimbursement to care providers, including child care providers serving low-income populations. The new law retains the entitlement status of the CACFP, but it restructures reimbursement rates such that lower rates are paid for children cared for in family homes outside of low-income areas and for non-low-income children cared for in family homes where the provider family income exceeds 185 percent of poverty. Other provisions reduce the inflation adjustment of rates for all family, child care homes and restrict centers' reimbursement to two meals and one supplement. Estimates show that these changes will reduce CACFP funding by \$2.3 billion over 6 years (5).

States may set work requirements that take effect even before these Federal mandates. As of 1996, 28 States required people to work immediately or within 6 months of receiving welfare benefits (6). Several other States have passed shorter work requirements that take effect before the Federal mandates.

Although States initially receive greater funding for child care programs under the welfare reform block grant than they received under the previous system, a major concern is whether the Federal funds authorized will be sufficient to cover the child care needs of both low-income families on welfare and those who are not.

An Urban Institute study concluded that the share of children in need of potential child care assistance who could be served with the available funds authorized by the Welfare Reform Act is about the same in 1997 as under the previous system if States maintain their levels of spending. However, this still results in about only one-third of children in need of child care assistance being served. The gap between child care funding and the need

for child care assistance by low-income families therefore remains (3).

The Congressional Budget Office (CBO) concluded that child care funds are adequate for States to meet work-related child care requirements for TANF participants. Federal child care support over the long term, however, will not meet the work requirements for TANF participants nor maintain current State spending for child care for people in transition and at risk of going on welfare (1).

Whether the Welfare Reform Act sufficiently funds the child care needs of low-income families primarily depends on two factors—eligibility and economic conditions. A State must first decide who is eligible to participate in the TANF program (at least 70 percent of a State's mandatory and matching child care funds must be used to provide child care assistance to TANF participants and those leaving the program or at risk of going on the program).

As with the previous welfare system, States have broad discretion in setting eligibility standards. If a State sets very strict eligibility standards, fewer people would be deemed needy and fewer would require child care assistance. Given the cap on Federal funds under the Welfare Reform Act, there is a fiscal incentive to set strict eligibility standards. Some critics of the act believe the cap will result in unreasonable eligibility standards compared with those of the previous welfare system. As a result, many poor families will be classified as not poor—and will not be eligible for child care assistance.

Rather than restrict eligibility, States could serve a larger number of families by providing a lower level of child care assistance to each family. This is permitted—the Welfare Reform Act gives States more authority in determining reimbursement rates. This, in turn, would increase the share of child care costs parents would be expected to cover. It could also result in parents purchasing lower quality child care.

Economic conditions will influence the adequacy of child care funding contained in the welfare reform legislation. When economic conditions are good, it is easier to move people off public assistance. Jobs that pay well are more plentiful, and people are better able to pay for child care without assistance. Under these conditions, Federal funding provided by the Welfare Reform Act may be more than adequate. If a recession occurs, States would have greater difficulty moving welfare recipients into the workforce. Well-paying jobs would be more difficult to find, and more families would likely need child care assistance.

The legislation, however, places a cap on the amount of Federal child care funds that a State may access. States do not automatically receive more Federal funding as a result of greater child care use by low-income families. Hence, in economic downturns, States may have to decide whether to serve low-income families on welfare or low-income families not on welfare. Under the previous system, child care assistance was an entitlement (all who qualified were served) for families on or transitioning off welfare. This is not the case under the present law. In economic downturns, Federal funding may not cover the needs of many low-income families. States may have to decide which families will receive child care assistance.

Even if the child care funding of the Welfare Reform Act proved to be adequate, the issues of supply and quality of child care would remain. As States implement welfare reform legislation and move welfare recipients into the labor force, demand for child care will grow. Evidence shows a gap between the demand for and supply of child care. A study by the U.S. General Accounting Office (GAO) found that in each of the four cities and counties reviewed, officials thought the supply of child care for children in certain age groups (especially infants and school-aged children) was inadequate to meet existing demands, particularly those of low-income families. GAO concluded that unless the supply of child care for certain age groups at these locales increases, the gap between supply and anticipated demand for child care is likely to become even greater as welfare reform is implemented (7).

Economic conditions will influence the adequacy of child care funding contained in the welfare reform legislation.

The quality of child care that will be provided to children of welfare recipients who enter the workforce is also an issue. Recent studies have concluded that the quality of child care is less than optimal. One 1995 multistate study rated the quality of child care as poor to mediocre in 86 percent of the centers surveyed (8). A study by the Families and Work Institute of family child care and relative care (care in the home of a provider not related or related to a child) found that only 9 percent of the homes could be rated as good, whereas, 35 percent were inadequate (2). Although the study oversampled in low-income and minority areas, this is where many welfare recipients reside.

State Initiatives in Child Care Under the Welfare Reform Act

The Welfare Reform Act's child care provisions will result in different policies among States. The National Conference of State Legislatures recently reviewed innovative State child care programs associated with the welfare system, many of which were part of earlier welfare reform efforts (5). Programs in Illinois, Iowa, and Utah were reviewed.

Illinois

A 1991 study of welfare recipients in Illinois found that one of the major impediments to their finding jobs was the cost of child care and the "income disregard" associated with this cost (5). The income disregard is an indirect reimbursement from the State for child care expenses. The State disregards up to \$200 in monthly income when calculating cash benefit levels. The disregard amount, however, was thought to be inadequate to cover the cost of child care.

In 1993, the State made significant changes in providing child care to needy families as part of its welfare reform package. The changes include direct payments to child care providers, which replaced the income disregard. In addition, welfare recipients are allowed to keep two-thirds of all income earned until this income reaches approximately three times their cash benefit level. When this amount is reached, the person is no longer eligible for welfare but is still eligible for transitional child care benefits.

Based upon its survey, Illinois also concluded that jobs that welfare recipients found often had irregular hours, such as night or weekend work. Illinois appropriated \$18 million for expanded child care coverage to accommodate people with these schedules. Less than a year after these changes, the number of families receiving welfare that had some earned income increased 58 percent. By December 1995, the State's welfare caseload had dropped by one-third (5). To expand its child care initiatives, in 1997, the Illinois Legislature appropriated \$100 million to provide child care for families with incomes below 50 percent of the State median income.

Iowa

Iowa instituted the Family Investment Plan (FIP) welfare reform program in 1993. Mutually agreed upon and signed by participants, the plan is designed specifically for each family's circumstances, provides for job training, and sets a date for a family to leave the welfare system. To help families do this, the State provides transitional child care for up to 24 months and expanded child care coverage to include those who leave the welfare system voluntarily

and those who receive child support. A study found that the number of participants with earnings increased from 18 to 33 percent between 1993 and 1995 (5).

In 1995, Iowa established priorities to target those families most in need of child care assistance. The poorest families on cash assistance who work at least 30 hours per week are the highest priority; other priority groups include young parents in an employment/education/training program, low-income families with a special-needs child, and low-income families working part time. Iowa increased child care funds by \$4.8 million (a 62-percent increase) in 1996 to pay for its child care initiatives and will continue the Family Investment Plan. In addition, a program for welfare recipients at risk of long-term dependency is available through the Family Development and Self-Sufficiency Grant Program (FaDSS). These grant programs, which may include support with child care assistance, provide family development and advocacy for participant families.

Utah

At the beginning of the decade, Utah revamped its welfare program. The new emphasis was to find jobs for people receiving welfare instead of just providing cash assistance. To support parents in the transition from welfare to work, the Single Parent Employment Program was introduced as a demonstration project in a few jurisdictions. Under the previous State welfare system, child care reimbursement rates were relatively low. Utah created a new payment method whereby parents were paid up front rather than reimbursed after child care was provided, and higher payments were permitted.

A 1996 evaluation of the demonstration projects found that only 14 percent of families were still receiving cash assistance and not working 2 years later, over half were receiving no public assistance, a quarter were receiving only Medicaid and food stamps, and 10 percent were working while receiving cash assistance (5). Since 1993, the welfare caseload for the State has declined by 44 percent (5). The demonstration projects in Utah became statewide in 1997.

Other State Efforts

The U.S. Department of Health and Human Services encourages partnerships with the business community in its guidelines for State planning for child care. Government money can be used to create a "Working Parent Assistance Trust Fund" in a community or State. In 1996, Florida passed a law establishing a State child care, executive partnership to encourage employer and foundation support for child care. The law creates a \$2-million State pool to match funding from the private sector, with the money being used to provide child care subsidies for low-income working parents. After successfully leveraging the \$2 million from private businesses, this State pool was doubled in 1997. Also in 1996, a community development corporation was formed in Colorado to provide loans and other financial assistance to child care providers.

In an effort to raise the quality of child care, several States pay a higher child care reimbursement rate to providers who meet certain standards. For example, Wisconsin reimburses untrained child care providers at 50 percent of the market rate and providers who undergo training at 75 percent of the market rate. Ohio and Maine also have higher authorized child care reimbursement rates for providers who meet national child care standards.

Conclusion

Although stated many times, this bears repeating—the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 changed welfare as we know it. Work requirements for welfare recipients are mandated. These requirements make child care even more crucial for the new system to be successful because child care is recognized as a primary obstacle to moving recipients into the workforce. Hence the law contains a child care block grant to States. It is unclear, however, whether the block grant will be sufficient to cover the child care needs of those required to work and low-income families not on welfare. A recent study of five State welfare demonstration projects found that child care demand increased more rapidly than administrators had forecasted (5).

Several State child care initiatives have been associated with increased workforce participation by welfare recipients. Some of this increased participation reflects general economic conditions, that is, a low unemployment rate. Whether the child care initiatives have a greater impact on workforce participation than economic conditions (or vice versa) is unknown. Unfortunately, this issue may only be made clearer if economic conditions decline and the unemployment rate rises. If conditions worsen, it is important that States not establish such strict welfare eligibility standards that many needy people do not qualify. Overly strict standards would only mask poverty problems.

The quality of child care provided to children of welfare recipients when these recipients enter the workforce is also an important issue. Recent research has indicated that child care is in short supply and much of the country's current child care is of less-than-optimal quality (2,7,8). Because poor child care may affect child development adversely, States need to ensure quality child care when moving welfare recipients to work. Failure to do so may have harmful long-term consequences for children and society.

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Discussion Paper on Domestic Food Security

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Introduction

The Problem

The United States produces an abundant variety of nutritious foods at increasingly affordable prices and makes them widely available in the marketplace. American consumers spend a lower budget share on food than their counterparts around the world. Investments in research and educational programs have increased food production, processing, marketing, and trade to a point where the United States produces food surpluses and exports foods all over the world. The Nation's commitment to regulation and inspection of food ensures that safe food products reach consumers. An extensive network of food assistance programs dedicates nearly \$40 billion annually to combat food insecurity and helps nearly one out of every six Americans.

Unlike many places in the world, undernutrition is not a major problem in the United States. Using the Food and Agriculture Organization's (FAO) hunger map methodology, about 2.75 percent of the U.S. population is estimated to have inadequate caloric intake. A very low prevalence of growth retardation,

an indicator of undernutrition in children, confirms that undernutrition is not a problem for the vast majority of American children. Growth retardation is more prevalent among children in low-income families—3 percent more than expected in a healthy population. Protein-energy malnutrition is rare in the United States, about 400 deaths a year, usually cases of child abuse and neglect or debilitating illness.

The vast majority of households in America are food secure. Food security means that all people at all times have access to enough food for an active, healthy life. At a minimum, food security includes the ready availability of nutritionally adequate and safe foods and the assured ability to acquire acceptable foods in socially acceptable ways (for example, without resorting to use of emergency food supplies, scavenging, stealing, and other coping strategies).

Despite this generally positive situation, the United States confronts nutritional challenges on several fronts. As diseases of nutritional deficiencies have diminished, they have been replaced by diseases that are related to dietary excesses and imbalances. These diseases, including heart disease, some cancers, stroke, and diabetes, now rank among the leading causes of illness and death in the United States, touch the lives of most Americans, and generate substantial health care costs.

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In addition, food insecurity and hunger still exist. Food insecurity is the converse of food security as defined above; hunger is defined as the uneasy or painful sensation caused by a lack of food. According to the new Food Security Supplement to the Census Bureau's Current Population Survey, about 12 percent of the approximately 100 million U.S. households experienced food insecurity to some degree in 1995. Of these, about 4 percent included adults with reduced food intake and hunger as a result of financial constraints. In just under 1 percent of households experiencing some level of hunger, children as well as adults experienced reduced food intake and hunger.

In war-torn countries or famine or drought situations, manifestations of hunger and undernutrition are obvious and extreme. In the United States, food insecurity is characterized by less obvious signs and family adaptations. For example, faced with limited resources for food and other necessities, many Americans turn to governmental food assistance programs. Others cope by skipping meals, by substituting varied, nutritious foods with less expensive alternatives, or by seeking emergency food from soup kitchens or food pantries.

Limited resources and access to food are prime factors leading to food insecurity. Low incomes combined with unaffordable living expenses such as housing, heating, or medical expenses, certain disabilities, or poor health can result in increased risk of food insecurity and hunger. Access to food in socially acceptable ways can be constrained by lack of transportation, living in remote locations, and lack of accessible food stores. Some vulnerable populations, such as the elderly, may feel stigmatized by accepting food assistance.

Poverty is a determinant and consequence of impaired nutritional and health status. Health disparities between poor people and those with higher incomes are almost universal for all dimensions of health whether it be undernutrition or diet-related chronic disease. For example, risk of heart disease is more than 25 percent higher for persons with low income than for the overall population. The incidence of cancer and the prevalence of hypertension and obesity vary inversely with socioeconomic status. Iron deficiency is more than twice as common in children in low-income families as among children in the total population.

The magnitude of these effects becomes more apparent when one considers that 13.8 percent of Americans lived at or below the poverty line in 1995. Fully 20 percent of U.S. children live in households with cash incomes below the poverty line; this is the third highest among developed nations. In addition to children, other population segments are also vulnerable to food insecurity, including the elderly, pregnant and lactating women, migrant workers, individuals with some types of illnesses or disabilities, the homeless, American Indians, and Alaska Natives. Each group has distinct needs and issues associated with obtaining adequate, sustained food intake.

In summary, food security incorporates the traditional idea of ensuring adequate food availability and nutrition safety nets. It also includes the need to create social and economic conditions that empower individuals to gain access to food by earning the income to purchase food, by participating in community food security activities, and where practical, by producing food. Effective and efficient use of food, including gleaning

and food recovery, is also an essential component of food security today.

Addressing all of these and other food security issues, globally and in the United States, requires comprehensive measures that integrate ongoing assistance and commitments with new initiatives in the following areas:

- **Economic Security**
- **Food Access**
- **Awareness of Hunger and Food Insecurity**
- **Nutrition and Food Security Education**
- **Sustainable Food Systems and Environment**
- **Food and Water Safety**
- **Monitoring Food Security and Nutritional Status**
- **Research and Evaluation**

The Response

The November 1996 World Food Summit in Rome focused the attention of the world on chronic problems of hunger and undernutrition, as well as the potential for increasingly acute food shortages in Africa and Asia. The September 1997 National Summit on Food Gleaning and Recovery focused the attention of the Nation on the intolerable existence of hunger and food insecurity in America.

In recognition of these renewed concerns about global and domestic food security, the U.S. Government has affirmed its commitment, along with other nations, to address food security problems internationally and in this country. The Government has adopted the World Food Summit goal of reducing undernutrition by half by the year 2015, recognizing that this goal should be

reached well before. In addition, the United States has embarked on a consensus process to establish a target for achieving domestic food security as part of the process for setting health objectives for the Nation for the next decade. Healthy People 2010 objectives will be released in early 2000.

The United States has begun a concerted effort to develop a long-range action plan to follow up on its commitments. The Interagency Working Group that was formed to prepare for the World Food Summit has been extended to manage this activity. Two new subgroups have been established to work on the international and domestic portions of the action plan.

After 6 months of public consultations, the U.S. Government initiated an extensive assessment of the various policies, programs, and other mechanisms that it brings to bear on food security both at home and abroad. The basic frame of reference for this assessment was the outline of issues and possible actions that were developed in the national consultations.

To facilitate further public input to the action plan, the Interagency Working Group has decided to release for public comment two parallel discussion papers. The first on international topics was

released October 16, 1997. This domestic paper represents initial thoughts on steps that could be taken to address a variety of concerns about food security in the United States that were raised in the course of national consultations held earlier in 1997. It focuses on ways to address food security, reflecting our new capacity to measure objectively and track its prevalence.

Economic Security

Issue

Economic security is a prerequisite to attaining food security. Economic security depends on the level and predictability of household income as well as savings, cash, and other wealth available from family, government, or other sources. The economic security of individuals and families is strongly influenced by several factors: Secure, adequately paying employment; stable, two-parent families; affordable household expenses for food, shelter, energy, transportation, education or training, and medical and child care; and government and private sector programs that provide a safety net in times of financial emergency.

In 1995, 13.8 percent of Americans, including 20.8 percent of all children, lived at or below the Federal poverty line. By the time they reach 18 years of age, 36 percent of children have spent a portion of their lives in poverty. It is likely that most of these children will have experienced periods of food insecurity or hunger. Poor children are most at risk because sound growth and healthy development, keys to becoming independent, secure, and productive adults, are crucial during early, formative years.

Enhancing the economic security of adults, particularly on the heels of welfare reform, is of prime importance and involves innovative intergovernmental and nongovernmental action to help the low income, underemployed, and unemployed to find and keep jobs in our sophisticated labor market. Creative approaches that build effective partnerships, incentives, and special transitional supports for those who need them are necessary elements of the new system. Perhaps the most critical long-term investment the Nation can make to

assure productivity and economic security is in primary, secondary, and post-secondary and adult education.

Priority Actions

- **Assist Low-income Individuals to Find Jobs**
- **Strengthen Supports to Help Individuals Keep Jobs**
- **Emphasize the Creation and Expansion of Jobs**
- **Build a Solid Foundation for Learning and Enhance Access to Education**
- **Focus on Vulnerable Subgroups, Especially Children**
- **Conduct Research to Improve Household and Community Economic Security**

Discussion

In August 1996, the 104th Congress enacted, and the President signed into law, the Personal Responsibility and Work Opportunity Reconciliation Act. Through the Temporary Assistance for Needy Families Block Grant Program or TANF, legislation has replaced Federal payments under the Aid to Families With Dependent Children Program with block grants and given greater flexibility to States.

Under TANF, Federal welfare benefits are limited to 5 years per participant lifetime, and States may set shorter time periods. States also determine benefit levels, what services to fund, and eligibility standards provided that recipients meet compliance requirements. The new law rewards States with a performance bonus for moving welfare recipients into jobs and also includes State maintenance of effort requirements; a stronger child support enforcement program;

supports for families moving from welfare to work, including increased overall funding for child care and guaranteed medical coverage; reduced duration of receipt of food stamp benefits by able-bodied adults without dependents and bans for receipt of food stamps by legal immigrants; and tightened eligibility requirements for disabled children under the Supplemental Security Income program. Finally, States may make legal immigrants ineligible for Federal TANF benefits, and new arrivals are banned from these benefits for 5 years. Some categories of legal immigrants, such as veterans and those who have worked in the United States for at least 10 years, are exempt from the bans.

As they implement TANF, States and communities are now experimenting and forming valuable partnerships with the private sector and nongovernmental organizations (NGOs). Simultaneously, Federal agencies are challenged to focus activities and resources, coordinate diverse programs to attain priority goals, and monitor and evaluate welfare reform measures and other actions for possible modeling or replication or for larger initiatives by States and communities. Of immediate importance is the need to identify and implement policies and programs that lead to job creation and expansion such as empowerment zones and enterprise communities. Promoting greater dialogue at all levels, especially in and across State lines, will enhance these efforts. With waivers and wider latitude, States can be viewed as “laboratories” where the factors that have been most influential in causing shifts in employment, earnings, welfare dependency, educational persistence, and other variables of interest can be analyzed to determine how all Americans can lead more economically secure lives.

The following actions expand on the six priority actions, which reflect the vital link between economic and food security.

1. Assist Low-income Individuals to Find Jobs

- Use innovative communication strategies to enhance the awareness of former and current welfare recipients and low-skilled individuals about community opportunities for jobs and basic and specialized skills training. Promote community networks and information-sharing strategies to disseminate updated local announcements and material.
- Publicly recognize and support private and public sector employers who provide job training, skills development, enhanced job opportunities, and other ways to improve self-sufficiency while simultaneously ensuring families an adequate income.
- Encourage States to use Employment and Training (E&T) matching funds to move individuals into jobs that effectively lead to self-reliance.

2. Strengthen Supports to Help Individuals Keep Jobs

- Support the development and provision of adequate, convenient, and affordable social services, including child and health care, public transportation, and training for employees. Promote the advantages of on-site child care facilities with employers. Foster collaboration, cost-sharing, and information dissemination among small businesses for such work support programs.

- Encourage employers to adopt flexible work arrangements and to comply with laws, such as the Family Medical Leave Act, which help employees to balance work and family responsibilities.
- Mentor workers to enhance their success in entry-level jobs and eventual promotion to better jobs. Encourage use of the skills and time of the community's elderly population as a source of volunteer training, mentoring, and support services.
- Continue to provide entry-level workers in low-paying jobs with special transitional supports for longer time periods and at augmented rates, if necessary, to meet fundamental daily requirements until they are able to support themselves.
- Promote skill development to low-skilled and underemployed workers as they move from welfare to jobs with increasingly greater responsibility.
- Expand educational programs, such as the food bank/USDA Cooperative Extension System, which build on the Expanded Food and Nutrition Education Program to include job training, parenting, and other skills.

3. Emphasize the Creation and Expansion of Jobs

- Implement the Presidential directive to Federal agencies to hire welfare recipients as an example for business leaders.

- Enhance incentives and innovative approaches to increase private sector participation in enabling individuals to move from welfare to work. For example, innovative activities are occurring throughout the country where nonprofit food banks and housing construction programs offer on-the-job-training and skill development needed in the private sector with funding provided by the corporate sector.
- Create partnerships and forums for identifying, sharing, and expanding successful welfare-to-work programs. Identify successful local programs as replicable models for larger initiatives.
- Encourage the private sector and NGOs in the community to create jobs and training programs for former and current welfare recipients and underskilled and/or underemployed individuals. As illustration, large and small companies are focusing innovative welfare-to-work initiatives in 12 cities with high levels of poverty. Focusing on mentoring and other support services, a coalition of civic groups, the Welfare to Work Coalition to Sustain Success, provides mentoring and other support services to help former welfare recipients remain in the workforce and succeed.
- Identify "space-specific" economic development activities for those living in remote areas.

4. Build a Solid Foundation for Learning and Enhance Access to Education

- Support family, community, and other nongovernmental efforts to promote children's early development and education to ensure that all children enter school ready to learn.

- Create business, community, and other alliances to meet the diverse needs of the student population and provide necessary support to students at risk of not achieving the knowledge and skills required to meet State standards for successful high school completion and ultimately for improved job opportunities, including those with limited English proficiency, with disabilities, in migrant families, and in high-poverty schools.
- Urge local businesses and community groups to create and share innovative ways to increase student participation in State school-to-work systems that enhance student achievement and improve technical skills.
- Mobilize business, nongovernmental, and civic groups to provide leadership in ensuring that schools are safe, disciplined, and drug-free. Encourage family and community involvement in State development and implementation of challenging standards and assessments for all students in core academic subjects.
- Develop communication strategies among business and community groups and schools to enhance access to postsecondary education as well as to available financial resources and support services to promote continued educational opportunities and ultimate career success.
- Motivate current full-time and part-time employees with entry-level positions to upgrade their skills and prepare for a more flexible and highly trained workforce through evening courses at community colleges, continuing education, and other lifelong learning opportunities.

5. Focus on Vulnerable Subgroups, Especially Children

- Encourage the use of case management by States, communities, or employers to address the cluster of difficulties faced by many vulnerable groups in achieving economic security. Successful case management helps individuals identify and locate the combination of training, education, child care, medical access, transportation, and housing that permits struggling individuals to enter and succeed in the job market.
- Customize assistance on a continuing basis for those individuals disabled from work because of health problems, including substance abuse, mental or emotional difficulties, and AIDS.
- Encourage State and community interventions to help those at particular risk for food insecurity, for example, legal immigrants affected by recent changes in the welfare and food assistance programs.
- Urge States to ensure that child support award levels are sufficient to meet the needs of the child(ren) and to implement uniform interstate child support laws.
- Launch strategies in States and communities to prevent teen pregnancies.
- Encourage States and communities to provide affordable, safe child care on a continuing basis to support low-income women who are moving from welfare to work.

6. Conduct Research to Improve Household and Community Economic Security (see Research and Evaluation Section)

Food Access

Issue

Recently released USDA estimates from the Food Security Supplement to the Current Population Survey indicate that about 12 percent of the 100 million American households experienced some degree of food insecurity in 1995, with about 4 percent also experiencing reduced food intake and hunger as a result of financial constraints. Of these, just under 1 percent included children with reduced food intake and hunger. Recent changes in eligibility for food stamps are expected to increase the number of households experiencing food insecurity.

The U.S. Government spends about \$40 billion on food assistance and is committed to improving further the access of all Americans, especially vulnerable populations, to safe, nutritious food. In addition, the U.S. Government works with States and communities to address community food system needs and to channel often wasted sources of food to those who need it most and is seeking to achieve a 33-percent annual increase in food recovery by the year 2000. Equally important is providing education along with food assistance on topics such as choosing nutritious diets, wisely spending food dollars, and gardening where practical.

Priority Actions

- **Assure an Adequate Food Security Safety Net and Enhance Food Access of Vulnerable Populations**
- **Encourage States and Local Community Groups to Address Hunger, Food Security, and Community Food System Needs and to Coordinate Their Efforts**
- **Increase Gleaning and Food Recovery**
- **Develop and Implement a Government Anti-hunger and Nutrition Initiative to Focus, Coordinate, and Enhance Government Efforts to Reduce Hunger and Expand Food Security**

Discussion

The Federal Government has promoted access to food and consumer education for more than 60 years, primarily through the U.S. Department of Agriculture's programs, including the Food Stamp Program, the Child Nutrition Programs, the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), and the Expanded Food and Nutrition Education Program (EFNEP), and through other commodity and nutrition education programs. In 1997, USDA's Fund For Rural America provided competitive grants to promote gleaning and food recovery.

Other Federal agencies also provide food assistance and support food security. The U.S. Department of the Interior's (DOI) Bureau of Indian Affairs offers emergency assistance for food, shelter, and clothing to those American Indians who do not qualify for other food assistance, and its Office of Insular Affairs provides funding to the territories for wide-ranging programs, including supplemental food programs in the Marshall Islands. In the U.S. Department of Health and Human Services (HHS), the Elderly Nutrition Program provides grants to State agencies on aging and to eligible Indian Tribal Organizations to support congregate and home-delivered nutrition services to older Americans. The national Head Start program provides comprehensive developmental services, including nutrition, to low-income, preschool children. The Department of Veterans Affairs (VA) provides community health care, housing, and support services including nutritional support and social rehabilitation with work therapy and on-the-job training to homeless veterans.

In addition to Federal, State, and local government agencies, nonprofit groups, religious organizations, and individual volunteers each provide critical links in the domestic food safety net. Groups such as the Christian Relief Service, Second Harvest and its network of food banks, Share our Strength, the Famine Relief Fund, and Feed My People, among others, provide food assistance beyond what government offers to low-income Americans and deepen the network of individuals dedicated to food security in the United States. Non-governmental institutions play a particularly vital role in food recovery. Second Harvest, for example, distributed 811 million pounds of food worth over \$1 billion in 1995.

A number of factors need to be considered in determining how best to increase access to food by specific vulnerable groups:

- Complex challenges face the homeless, who may sleep in the streets or in emergency shelters that provide three or fewer daily meals. Soup kitchens are a primary source of meals for these persons, yet negotiating this system to obtain adequate food can be a formidable and time-consuming task. Also, while homeless people are often eligible for food stamps, they are extremely limited in their ability to store and prepare food, and very few restaurants are authorized to accept food stamps.
- New restrictions on eligibility for food stamps for legal immigrants and the time limit on receipt of food stamps by nonworking, able-bodied adults without dependents limit food access.

- Gaps exist in the current service system for poor children. For example, while the free and reduced-price lunches are widely available during school days through the National School Lunch Program (NSLP), the School Breakfast Program is available in just 70 percent of the NSLP schools, and the Summer Food Service Program reaches only 14 percent of the students who receive free and reduced-price lunches through the NSLP.
- Food insecurity factors link with aging, including health problems, limited ability to purchase, prepare, and physically ingest nutritious food, and poverty. It is anticipated that the risk of food insecurity may increase as the number of all elderly doubles, and the number of those over 85 years old quadruples, by the year 2050.
- Obstacles to food access are faced by some American Indians and Alaska Natives, such as living in rural and remote locations, high unemployment, and high poverty rates. For example, the 1995 unemployment rate for the whole U.S. population was 5.6 percent, compared with 35 percent among American Indians living on and adjacent to reservations. Only 29 percent of those Indians employed in these areas earned \$9,048 or more annually.
- U.S. migrant and seasonal farm workers may have impaired access to adequate food. Low incomes and difficult working conditions limit their ability to purchase and prepare adequate meals. Migrant labor camps are in rural areas and workers often lack transportation, which may limit their ability to purchase varied, reasonably priced foods.

The activities outlined in the rest of this section illustrate ways each priority action could be implemented. They incorporate concerns related to vulnerable populations.

1. Assure an Adequate Food Security Safety Net and Enhance Food Access of Vulnerable Populations

- Fund food assistance programs at a level to enable response to changing economic conditions and meet the needs of general and special-need population groups.
- Continue to improve the management and fiscal integrity of food assistance programs and work with the anti-hunger community to identify needs and opportunities to better utilize Federal programs within communities.
- Improve program participation by developing a low-cost communications network using modern technologies as well as traditional avenues to link food-insecure individuals with food assistance services.
- Improve access of the eligible elderly to food and nutrition programs.
- Review food assistance programs and identify ways to improve the current system to overcome the barriers to food access faced by American Indians and Alaska Natives.
- Improve accessibility of WIC services to the Community and Migrant Health Service and Indian Health Service facilities.

2. Encourage States and Local Community Groups to Address Hunger, Food Security, and Community Food System Needs and to Coordinate Their Efforts

- Involve and encourage local anti-hunger groups and multisectoral food security councils to help build community capacity to address food insecurity by assessing common needs and combining resources and approaches.
- Foster public-private and inter-governmental partnerships and project recognition awards to sustain community programs. For example, resources that increase food access should be encouraged and could include the rerouting of public transportation to serve major supermarkets.
- Expand home food delivery to the needy through partnerships between private food providers and local food assistance and volunteer service organizations. Similarly, consider providing home food delivery programs to serve poor children meals outside of school hours and during the summer.
- Strengthen State initiatives that target food assistance and access. Encourage States to use effectively Federal matching funds for administration of the Food Stamp Program and to continue supporting nutrition education and food and life skills efforts.

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- Explore possible avenues for the coordination of public and private nutrition services, including co-location. For example, co-locating child care services and WIC clinics in subsidized housing could improve accessibility of these services to residents.
 - Create mobile WIC farmers' markets to promote and expand access to fresh produce by low-income women, infants, and children in areas not currently served by fixed location farmers' markets.
 - Explore formation of innovative partnerships, such as with hunters' groups and meat processors to donate game meat for food banks, ensuring that food safety issues are addressed.

3. Increase Gleaning and Food Recovery

- Implement the national goal of a 33-percent annual increase in food recovery by the year 2000. This would provide an additional 500 million pounds of food a year, enough food to support meals for 450,000 Americans each day.
- Conduct annual summits on food recovery and gleaning to build partnerships, to assess progress and address barriers, and to share innovative and successful methods of food recovery.
- Continue to incorporate food recovery activities into programs of all Federal agencies, private businesses, and NGOs.

- Strengthen partnerships among farmers, NGOs, community service organizations, and other private organizations to promote field gleaning and food recovery while ensuring food safety.
- Encourage community-based food recovery efforts by providing technical assistance, facilitating public/private partnerships, and by bringing national attention to such efforts.
- Identify innovative ways to transport donated food to those in need.
- Publicize applicable U.S. tax code deductions and the Good Samaritan Act to encourage food donation.

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- Increase public awareness of food waste and the importance of gleaning year-round. Continue to promote the USDA's food gleaning hotline (1-800-GLEAN-IT) and the *Citizen's Guide to Food Recovery*.
 - Promote volunteer gleaning and food recovery activities. Encourage public and private school systems to adopt community service as a graduation requirement, highlighting local gleaning and food recovery projects as options for meeting this requirement.

4. Develop and Implement an Anti-hunger and Nutrition Initiative to Focus, Coordinate, and Enhance Government Efforts to Reduce Hunger and Expand Food Security

- Identify ways to achieve the initiative's four goals: To reduce the incidence of hunger in the United States; to strengthen the nutrition assistance safety net and eliminate the stigma of participating in nutrition assistance programs; to increase awareness and raise the national consciousness of the level of hunger and food insecurity nationwide; and to reinforce the U.S. Department of Agriculture as the lead agency in eliminating hunger.
- Actions under discussion include creation of a community hunger action kit, transforming food assistance programs into nutrition promotion/health enhancement programs, and expanding the WIC Farmers' Market Program.

Awareness of Hunger and Food Insecurity

Issue

While Americans recognize and are often moved to action by the acute and graphically depicted hunger of developing countries, we are less likely to be aware of the hunger and food insecurity experienced in our own country. This may occur because the manifestations are often less obvious or different in nature. For example, food insecurity may coexist with obesity. Long-term consequences of food insecurity and undernutrition on the growth and learning capacity of children, the health and productivity of adults, the stability of families and societies, and migration patterns worldwide are less well understood by the general public. In addition, strong economic linkages exist between world food security and the well-being of all Americans that are largely unrecognized. We need to mobilize, catalyze, and educate ourselves about hunger and food insecurity both at home and abroad to spur the actions needed to alleviate these problems.

Priority Actions

- **Promote Awareness of Domestic Food Insecurity and Hunger**
- **Improve Effective Use of the Media**
- **Highlight the Links Between Domestic and International Agriculture, Hunger, Food Security, and Poverty**
- **Promote Awareness Overseas About Food Security Issues**

The actions below are illustrative and pertain to the priority actions outlined above.

1. Promote Awareness of Domestic Food Insecurity and Hunger

- Increase visibility of national awareness activities. For example, higher level attention could be provided to existing publicity and outreach mechanisms like World Food Day, and collaborative food forums could be held.
- Conduct an ongoing, national “Food for All” campaign, as a vehicle to raise awareness about the urgency and magnitude of food insecurity, using a partnership of highly visible governmental, non-governmental, and private sector organizations and individuals.
- Convene a White House conference on hunger.
- Assist interested community groups to formulate and implement their own outreach campaigns. Recruit youth groups to participate; develop suitable activities.
- Use social marketing techniques to assess misperceptions about food insecurity in specific target audiences and to promote attitude and behavior change.
- Highlight farmers’ markets as focal points to connect farm, nutrition, and food security issues.
- Develop school/community/business awareness programs.
- Promote training and leadership opportunities for youth that emphasize education and information on health, nutrition, food safety, farm issues, and the causes of food insecurity.
- Encourage businesses to sponsor more internships and mentoring programs that offer experience, training, and education in food security issues.

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- Facilitate business partnerships with agencies providing aid and apply the creativity used in corporate marketing of products to raise awareness of hunger.

2. Improve Effective Use of the Media

- Develop and utilize effective education and accurate news services for citizens as well as legislators about the extent and causes of food insecurity and the coping behaviors of citizens who are hungry.
- Consider a “faces of hunger” approach that personalizes the issues and is based on relevant data pertinent to distinct population subgroups to enhance understanding of the different forms of hunger, food insecurity, and inappropriate nutrition and their determinants and consequences.

3. Highlight the Links Between Domestic and International Agriculture, Hunger, Food Security, and Poverty

- Inform the U.S. public, Congress, and the agricultural community of the strong economic linkages that tie U.S. agriculture and exports to agricultural and economic development overseas, including trade, genetic resources, and research.
- Increase awareness of the role of economic, human capital, and agricultural development in alleviating food insecurity and malnutrition internationally and the positive impacts on U.S. society.

- Use a coordinated, interagency effort in partnership with U.S. universities and agribusiness. Build on and more fully coordinate outreach mechanisms already under development by government agencies.

- Request U.S. Agency for International Development (USAID) country directors in countries with agricultural programs to examine more fully and address the linkages between household food security and agricultural and economic growth.

4. Promote Awareness Overseas About Food Security Issues

- Raise food security issues with developing country officials. Foster increased attention in international meetings, especially with Ministers of Finance. Request ambassadors, USAID country directors, and staff to raise the visibility of food security issues during in-country discussions with local officials.
- Jointly sponsor conferences and “awareness” events with developing countries.
- Increase media attention in developing countries. Encourage local media attention to food security issues and increase local awareness of the U.S. Government’s recent increased emphasis on food security issues.

Nutrition and Food Security Education

Issue

Nutrition promotion and consumer education can assist food insecure individuals to acquire the knowledge, attitudes, skills, and behaviors needed to stretch limited food dollars, practice healthful dietary habits, including breastfeeding, and in the process, save medical costs and improve quality of life. However, the continued degradation of public funding from an already low level illustrates the inadequate appreciation of the value of nutrition promotion and education in protecting health. For example, USDA currently invests about \$250 million in nutrition education, evaluation, and demonstration programs, compared with some \$30 billion spent by the private sector on food advertising.

Priority Actions

- **Increase Cooperation to Promote Sound Nutritional Guidance More Effectively**
- **Maximize and Maintain Nutrition Education Resources**
- **Strengthen Emphasis on Nutrition Education and Resource Management in Food Assistance Programs**
- **Continue Promotion of Breastfeeding and Raising Awareness of Benefits**
- **Integrate Food Recovery and Gleaning in Nutrition Education Programs**
- **Teach Awareness of Agriculture and Gardening**

Discussion

Healthful diets are essential for optimal growth, productivity, and well-being, and can also reduce risk for certain chronic diseases. The *Dietary Guidelines for Americans* describes dietary patterns that promote health and prevent disease and serves as the basis for Federal nutrition education activities. Breastfeeding is the optimal, as well as most economical, feeding method for infants, but mothers who are young, poor, and less educated are least likely to breastfeed. In keeping with the national commitment to increase the self-reliance of low-income Americans, it is also important to assist food insecure Americans to economically and effectively manage food budgets for the welfare of the whole family.

The following are illustrative activities to achieve effective nutrition promotion and food security education. They are organized around the six priority actions.

1. Increase Cooperation to Promote Sound Nutritional Guidance More Effectively

- Expand cooperation across all sectors to ensure that consistent messages promoting healthful dietary practices based on the *Dietary Guidelines for Americans* are conveyed to the public.
- Develop public-private partnerships that effectively promote nutrition education, building on the examples of the 5-a-Day for Better Health Program, Team Nutrition, and the Dietary Guidelines Alliance.

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- Employ social marketing techniques to reach target population groups, including those at risk for food insecurity, with relevant nutrition and lifestyle messages. Use evaluations of the impacts of nutrition interventions on dietary behavior change to target actions effectively.
 - Promote information-sharing about successful nutrition education initiatives and research and evaluation results that can spur community action.
 - Use the Internet as a communication medium through which accurate information can be quickly and easily accessed by a wide audience, both nationally and internationally.

- Explore the potential for a centralized database that summarizes planned, current, and ongoing nutrition promotion activities at the Federal, State, and local levels.
- Promote awareness of NGO-sponsored nutrition education efforts. For example, some local groups hold workshops on economical, nutritious food buying and preparation or publish weekly shopping lists that highlight foods in local supermarkets that offer the most nutritional value per dollar.

2. Maximize and Maintain Nutrition Education Resources

- Maintain vehicles designed to reach low-income families with young children and youth and help them acquire the knowledge, skills, attitudes, and behaviors necessary to achieve nutritionally sound diets. USDA's Expanded Food and Nutrition Education Program (EFNEP) and Nutrition Education and Training Program (NET) are examples of such programs.

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- Pursue cost-sharing and in-kind service collaborations, such as inter-program coalitions, private sector partnerships, alliances, and matching fund arrangements with State and local nutrition education providers to support nutrition education and promotion projects that address common target audiences and program objectives.

3. Strengthen Emphasis on Nutrition Education and Resource Management in Food Assistance Programs

- Improve and increase education on nutrition and farm/agricultural issues as components of all food assistance programs. Continue to emphasize nutrition education as a priority.
- Promote change in the culture of food assistance to make them nutrition promotion/health enhancement efforts. Work to minimize the stigma associated with food assistance.
- Integrate training on money management, meal planning, food purchasing, and food preparation into nutrition education targeted at the low-income population, as is done by USDA's Expanded Food and Nutrition Education Program (EFNEP) and nutrition education components of the Food Stamp Program.
- Promote educational programs associated with food assistance that encourage economical gardening skills and wise use of food dollars.
- Coordinate Federal, State, and local government nutrition education activities in USDA food assistance programs.
- Support continued nutrition education and training for staff working in food assistance programs.

4. Continue Promotion of Breastfeeding and Raising Awareness of Benefits

- Conduct a breastfeeding promotion campaign, using television, radio, print, and local resources to increase understanding of the health and social benefits of breastfeeding and to increase community support for breastfeeding among WIC participants.
- Develop a breastfeeding promotion kit for health care providers to help them encourage new mothers to choose to breastfeed their infants.
- Encourage the creation of breastfeeding rooms and other supportive measures for working mothers.
- Support breastfeeding classes in hospitals and prenatal care centers.

5. Integrate Food Recovery and Gleaning in Nutrition Education Programs

- Educate food handlers on the problem of food waste and methods of gleaning.
- Integrate concepts of food recovery in basic family and consumer sciences (home economics) and life skills education programs.

6. Teach Awareness of Agriculture and Gardening

- Develop education programs and curricula on the production, distribution, and consumption of food and integrate into nutrition education programs.
- Broaden perspectives of food systems by promoting community gardens and teaching the nutritional benefits of gardening, for example, in homeless shelters, housing projects, or schools.

Sustainable Food Systems and Environment

Issue

Sustainable, ecologically sound agriculture ensures the ability of farmers to continue producing food indefinitely and to contribute to sustainable food security. Achieving sustainable agriculture challenges food producers, consumers, and policymakers to consider long-term implications of farming practices, consumer demands, and the broad interactions and dynamics of food production systems, and to design supportive policies. To be sustainable, agricultural practices and policies must meet economic, ecological, and social/cultural criteria often considered in terms of farm profitability, environmental stewardship, and quality of life for farm families, rural communities, and consumers. Environmentally sensitive policies conserve soils, protect fragile lands, and protect watersheds.

Expanding agricultural productivity simultaneously with effective stewardship of natural resources to ensure the delivery of goods and environmental services at reasonable costs to current and future generations presents a major challenge in the United States and abroad. Agriculture in the United States accounts for over 50 percent of land use, 40 percent of freshwater withdrawals, and 80 percent of the consumptive use of freshwater. Agricultural production and runoff from farmland also pollutes surface- and ground-water, including coastal zones, and harms wildlife and both freshwater and marine fisheries. The need for expanded sustainable agricultural production must be balanced with the need to protect the ability of a healthy environment to sustain life and bio-diversity.

Global warming and climate change is an emerging issue of concern and calls for development of policies to mitigate adverse impacts. Other climate effects, including the El Niño and La Niña cycles of oceanic and atmospheric circulation patterns, are under scrutiny. These cyclic patterns cause a periodic reversal of conditions in the equatorial Pacific that unsettles weather patterns worldwide. Related changes in rainfall can affect crop yields, and changes in ocean currents can have impacts on fisheries.

Priority Actions

- **Develop and Implement Flexible, Environmentally Sensitive Agricultural Policies**
- **Emphasize Farmland Protection Policy and Partnerships With the States**
- **Implement Policies to Mitigate Global Warming and Climate Change**
- **Enhance Development of Local Food Systems**
- **Develop a National Program to Build Sustainable Fisheries and to Sustain Healthy Coasts**

Discussion

Environmentally sensitive agriculture keeps water clean and potable, builds soil fertility with natural nutrients, controls pests with minimal use of chemicals, minimizes and mitigates adverse impacts of nutrient over-enrichment, and maintains healthy and desirable air quality standards. It must also make full use of emerging technologies such as biotechnology that hold promise for increasing productivity. To fail to develop technologies that hold potential for increasing yields in environmentally benign ways is to choose a development path that potentially compromises fragile lands.

Credible indicators of agricultural sustainability need to be established that reliably assess trade-offs between conflicting effects identified by different markers.

Tailored to site-specific requirements, agriculture that is sustainable will over the long term satisfy human food and fiber needs; enhance environmental quality and the natural resource base upon which the agricultural economy depends; make efficient use of non-renewable resources and on-farm/ranch resources, and integrate, where appropriate, natural biological cycles and controls. Economic viability of farm/ranch operations is required. Sustainability extends beyond the well-being of the current generation to reflect concern for the ability of future generations to meet their needs.

Though farming systems vary from region to region, common themes and practices appear among farmers trying to take more sustainable approaches. These include greater use of on-farm, local, or management resources, restrained use of toxic inputs, resource conservation and pollution abatement, effective marketing, and increased crop and landscape diversity. Non-point source pollution is a particular concern of agriculture, with increasing attention paid to impacts of nutrient run-off on watersheds and coastal waters. Because of the heterogeneity of the natural resource base, a decentralized approach to research, development, technology transfer, and policy is warranted.

Market policies must furnish appropriate incentives for sustainability. Because property rights are not clearly established for environmental services such as clean water, market prices for them may not fully reflect society's values and may

not afford economic incentives for their provision. However, with education and experience some farmers and fishers are learning that management practices that are more environmentally benign can be as profitable or more profitable than some conventional practices.

Another dimension of sustainability is the preservation or decline of U.S. family farms and farming communities; the distribution of farm size in the United States is now essentially bimodal. The number of small- and medium-size, full-time farmers—both minority and majority—has declined over the years. Policies, to contribute to retaining farm families on the land for succeeding generations, must assist them in becoming profitable enough to compete in a highly technical and capitalized agricultural market environment. Another concern is preservation of farm land. Once land is developed for urban or industrial use, it rarely returns to agriculture. Measures to address farmland protection include the Farmland Protection Policy Act of 1981 and the Farmland Protection Program in the 1996 Farm Bill.

Some development specialists believe that increasing consumer demands for organic food, specialty foods, locally grown food, and community supported agriculture (CSA) can create opportunities for small-scale agricultural producers and at the same time revitalize local economies through increased local food production and processing capacity and marketing systems. Measures to support local food systems include innovative government programs such as the Women, Infants, and Children (WIC) Farmers' Market Nutrition Program; use of the Food Stamp Program to foster community supported agriculture; policies to promote

urban agriculture, link school and institutional food service to local food sources, promote inner-city and farmers' markets; and policies to promote marketing of organic or other specialty products. Conservation policies to reduce soil

erosion and protect fragile lands such as the Conservation Reserve Program (CRP) and the Wetlands Reserve Program (WRP) can help protect environmentally sensitive lands.

Recent scientific evidence suggests that the release of certain gases, including carbon dioxide (CO₂), methane (CH₄), hydrofluorocarbons (HFCs), and perfluorinated compounds (PFCs), is increasing the “greenhouse effect” and causing the earth’s temperature to rise. Policy options to help mitigate effects of global warming and climate change should be explored and implemented when feasible. Adverse effects on food security of short-term weather variability can be tempered through increased use of climate forecasts based on the El Niño-Southern Oscillation phenomena, available up to a year in advance.

An emerging issue is nutrient over-enrichment, which can lead to excessive algal growth or blooms with adverse impacts leading in some cases to kills of fish and other marine organisms. Possibly, health risks to humans can arise from contact with the blooms, as well as from consumption of seafood contaminated with the algal micro-organisms. Each year, coastal tracts are closed to seafood harvesting because of possible human health impacts.

Another area of focus is the need for a national program to build sustainable fisheries in the United States including development of means for preventing overfishing, for addressing overfished stocks, overcapitalization, and bycatch, and for preserving fish habitats as well as for promotion of the development of environmentally sound aquaculture.

The following activities incorporate the issues discussed here and expand on the priority actions outlined above.

1. Develop and Implement Flexible, Environmentally Sensitive Agricultural Policies

- Implement programs such as the Conservation Reserve Program (CRP) and the Wetlands Reserve Program (WRP) that protect fragile lands and reduce soil erosion.
- Target programs to areas that are most cost-effective, focusing on the most environmentally sensitive land that yields the greatest environmental benefits.
- Incorporate flexibility into program designs. An example is locally led conservation that allows farm operators and other interested community members to assess their needs and select the most appropriate approach among a set of options to best maintain productivity and natural resource and environmental integrity.
- Implement USDA-wide adoption of ecosystem approaches to policy development and research prioritization as described in the *USDA Ecosystem Approaches Action Plan*. This plan addresses the need to take a sustainable approach to agriculture in harmony with the environment and covers a broad range of suggestions that will improve food security.
- Identify ways to minimize and mitigate impacts of nutrient over-enrichment in partnership with stakeholders.
- Increase collaboration among government, industry, and nonprofit entities working to strengthen the concept of sustainable agriculture in food security while encouraging coordination, policy development, and understanding.

- Develop useful and credible indicators of agricultural sustainability, including indicators and measures of environmental goods and services.

2. Emphasize Farmland Protection Policy and Partnerships with the States

- Implement and, where appropriate, expand on the requirements of the Farmland Protection Policy Act of 1981 and the Farmland Protection Program in the 1996 Farm Bill.
- Monitor and report on farmland conversion. Link with other Federal and State departments and agencies that affect farmland conversion, including the Environmental Protection Agency (EPA) and the Departments of Transportation and Housing and Urban Development, to review and amend projects, programs, and conflicting policies that can lead to farmland conversion.
- Support State and local government incentives to landowners to retain land in agriculture and keep it affordable to attract new farmers to enter farming.

3. Implement Policies to Mitigate Global Warming and Climate Change

- Encourage States to include in their action plans residential tax credits, State home oil weatherization programs, home energy rating systems, energy-efficient mortgages, new home building codes, public sector building retrofits, and other incentives to reduce greenhouse gas emissions.

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- Increase use of climate forecasts based on the El Niño-Southern Oscillation phenomena. Document the impacts of these phenomena on crop yields, water resources, and energy demands, and develop the necessary infrastructure to utilize the forecasts to mitigate these impacts.

4. Enhance Development of Local Food Systems

- Expand the Women, Infants, and Children (WIC) Farmers' Market Nutrition Program, which provides fresh fruits and vegetables to WIC clients, introduces participants to farmers' markets, and promotes small resource farms. Communicate the program's benefits.
- Promote farmers' markets as marketing opportunities for small- and medium-sized farmers, many of whom are minorities.
- Enhance food stamp use at farmers' markets and CSAs. Initiate and efficiently operate the use of electronic benefits transfer in the Food Stamp Program at farmers' markets and for CSAs across the country.
- Develop policies to support and encourage urban agriculture.
- Explore the potential to link local institutional food services (cafeterias/ restaurants) to local sources of food.
- Foster inner-city markets to help fill gaps in areas that do not have sufficient income to attract supermarkets into their area.
- Explore expansion of Enterprise Zones/Enterprise Communities rural projects that involve farmers' markets.

5. Develop a National Program to Build Sustainable Fisheries and to Sustain Healthy Coasts

- Build sustainable fisheries by maintaining healthy stocks and rebuilding overfished stocks based on assessments of the status of fishery resources, by improving capabilities to advance fishery predictions, by managing for economic growth and sustainability, by ensuring adequate compliance, by addressing bycatch and overcapitalization, and by providing research and services for fishery-dependent industries.
- Promote the development of robust and environmentally sound aquaculture.
- Sustain healthy coasts by protecting, conserving, and restoring coastal habitats and their biodiversity, by promoting clean coastal waters to sustain living marine resources and to ensure healthy seafood and economic security, and by fostering well-planned and revitalized coastal communities.
- Conduct a conference on animal waste and the public health and environmental impact arising from excessive nutrient loading in water and soils to develop policy options that balance the needs of producers, industry, environmentalists, public health officials, recreation, and community interests.

Food and Water Safety

Issue

Safe food and drinking water support health, supply nutrients, and are essential requirements for food security. Although U.S. food and water supplies are among the safest in the world, foodborne illness strikes from 6.5 to 33 million Americans each year, resulting in about 9,000 deaths. Estimated medical costs and productivity losses related to foodborne pathogens range from \$6.5 billion to \$34.9 billion annually. Concerns about food and water safety affect all consumers. However, certain groups, such as the homeless, children, the elderly, and American Indians and Alaska Natives, may be especially at risk of foodborne illness. Broad prevention strategies, including regulation and producer and consumer education, are critical to assure the safety of food at each step along its path from production to consumption.

Priority Actions

- **Implement the Presidential Initiative “Food Safety from Farm to Table”**
- **Implement the Food Quality Protection Act (FQPA) of 1996**
- **Implement the Safe Drinking Water Act (SDWA) Amendments of 1996 and Support Related Efforts**
- **Promote Integrated Pest Management (IPM)**
- **Promote Food Safety Education**

Discussion

Food- and water-borne risks fall into two broad categories: Illness caused by microbial contamination and chronic or acute exposure to harmful substances such as pesticides, contaminants, or other toxins. Recognition that these public health problems are an increasing concern has led to new legislation, regulations, and collaborative efforts to improve scientific and regulatory approaches to protect consumers, including the following:

- ***Food Safety From Farm to Table:*** Launched in 1997, this Presidential initiative calls for a nationwide early-warning system for foodborne illness, increased seafood safety inspections, and expanded food safety research, training, and education.
- ***Food Quality Protection Act (FQPA) of 1996:*** This law substantially strengthens the U.S. pesticide regulatory system and affords EPA and FDA unprecedented opportunities to provide greater health and environmental protection, particularly for infants and children, as well as other vulnerable populations. It establishes a single, health-based standard for all pesticide residues in all foods. It provides for a more complete assessment of potential risks, with special protections for potentially sensitive groups, such as infants and children.

- ***Safe Drinking Water Act (SDWA) Amendments of 1996:*** These changes will assure the sustainable availability of safe drinking water. The Amendments increase State flexibility, provide for more efficient investments by water systems, give better information to consumers, and strengthen EPA’s scientific work, including the use of risk and cost-benefit considerations in setting drinking water standards.

Some subpopulations have distinct characteristics or circumstances that may make them particularly vulnerable to microbial or contaminant exposure:

- The homeless often face unique problems of food and water safety due to lack of refrigeration, cooking facilities, and wholesome food.
- Children are more vulnerable to many environmental contaminants because their bodies are growing rapidly, and compared with adults, they eat proportionally more fruits and vegetables and drink proportionally more water and milk.
- The elderly, especially those affected by degenerative diseases, may be less able to practice safe food handling and also may be more susceptible to foodborne illness.
- American Indians and Alaska Natives consume fish and wildlife as major components of traditional diets. Food safety concerns may contribute to a higher risk of food insecurity in these populations if these food sources are contaminated by agricultural or industrial pollution.

The action steps outlined below expand on the priority areas to assure food and water safety.

1. Implement the Presidential Initiative “Food Safety from Farm to Table”

- Enhance surveillance and build an early-warning system to help detect and respond to outbreaks of food-borne illness promptly and to collect data to prevent future outbreaks.
- Improve responses to foodborne outbreaks by enhancing inter-governmental coordination and strengthening the infrastructure at State health departments.
- Improve risk assessment to characterize more effectively the nature and magnitude of risks to human health associated with foodborne hazards and to assist regulators in appropriate allocation of resources.
- Formulate new research methods for rapid and cost-effective testing for the presence of pathogens in foods, enhance understanding of how pathogens become resistant, and develop technologies for prevention and control of pathogens.
- Improve inspections and compliance for major higher risk foods, including seafood, fresh fruit and vegetable juices, egg products, produce, and imported foods.
- Expand food safety education of food preparers and handlers at each point of the food chain.
- Continue the long-range planning process to produce a strategic plan for improving the U.S. food safety system.

2. Implement the Food Quality Protection Act (FQPA) of 1996

- Reassess existing pesticide residue limits in accordance with the new and consistent health-based standard of safety.
- Conduct dietary exposure surveys among infants and children.
- Use an extra 10-fold safety factor to take into account potential pre- and post-natal developmental toxicity and completeness of the data with respect to exposure and toxicity to infants and children.
- Consider available information on aggregate exposure from all non-occupational sources.
- Prepare a new brochure on pesticide residues in food for display in supermarkets and grocery stores to inform consumers about pesticide risks and benefits.
- Periodically re-evaluate all pesticides for adherence to current safety standards and support by up-to-date scientific data.
- Expedite approval of safer, reduced risk pesticides.
- Develop safer, effective crop protection tools for American farmers.

3. Implement the Safe Drinking Water Act (SDWA) Amendments of 1996 and Support Related Efforts

- Local water authorities will disclose annually which chemicals and bacteria are in drinking water and improve the 24-hour notification process after discovering a dangerous contaminant in the water system.

- Strengthen pollution prevention efforts by assessing threats to and providing funding for State source water protection efforts and through new requirements for State water system capacity development and operator certification programs.
- Consider more closely the special needs of children, the elderly, and people living with AIDS and weak immune systems.
- Assign highest priority to preventing and treating the most harmful pollutants in tap water, such as *Cryptosporidium*.
- Improve badly deteriorating water systems throughout the country and strengthen State programs to protect drinking water.
- Continue and expand the partnership for safe water, a voluntary, cooperative effort between EPA, the American Water Works Association (AWWA), and other drinking water organizations, and over 186 surface water utilities representing 245 water treatment plants throughout the Nation.

4. Promote Integrated Pest Management (IPM)

- Increase use of IPM and risk/use reduction strategies to significantly decrease use of synthetic chemical pesticides.
- Achieve USDA’s goal of having 75 percent of U.S. crop acreage under IPM by the year 2000.
- Continue to promote the public/private partnership, Pesticide Environmental Stewardship Program (PESP), in which grower groups and utilities develop and implement plans to reduce pesticide risks and use.

5. Promote Food Safety Education

- Use the Partnership for Food Safety Education to develop science-based consumer-oriented messages to promote safe food handling practices, with cooperation among the U.S. Departments of Health and Human Services, Agriculture, and Education, State representatives, and food industry and consumer groups.
- Increase collaboration among government and nongovernmental groups to target and change unsafe food-handling practices by food handlers throughout the food chain. Include food-service workers, especially those providing food to populations at high risk of food-borne illness, or in educational efforts.
- Promote and incorporate food safety education into school programs.
- Encourage setting up a food safety education outreach program, using volunteers, to reach homebound individuals.
- Improve veterinary and producer education at veterinary and agriculture colleges. Strengthen current programs—designed to educate producers, veterinarians, and State and local regulators—about proper animal drug use to minimize residue levels and about quality assurance programs.
- Enhance funding for the USDA's Food Safety and Quality National Initiative Competitive Grants Program that supports education to help reduce foodborne disease and to increase knowledge of food-related risks.

U.S. Food Security Supplement to the Current Population Survey

This survey is the largest of its kind, both in number of households surveyed and questions ever asked in the U.S. Food security is measured at four levels:

Food secure — Households show no or minimal evidence of food insecurity.

Food insecure without hunger — Food insecurity is evident in households' concerns and in adjustments to households' food management, including reduced quality of diets. Little or no reduction in household members' food intake is reported.

Food insecure with hunger — Food intake for adults in the household has been reduced to such an extent that it implies that adults have experienced the physical sensation of hunger. Such reductions are not generally observed for children in the household.

Food insecure with severe hunger — Households with children have reduced the children's food intake to an extent that it implies that the children have experienced the physical sensation of hunger. Adults in households with and without children have experienced more extensive reductions in food intake.

The survey questions constitute a coordinated set of indicators designed to capture the full range of food insecurity and hunger behaviors, including related background information. These questions cover food expenditures, food assistance program participation, food sufficiency⁺⁺ and related concerns, food scarcity, and strategies for food shortage coping. The questionnaire items measure a variety of life experiences, behaviors, and self-perceptions that, taken together, can indicate household hunger and food security.

The instrument explicitly, but not exclusively, restricts the concept of food insecurity and hunger to conditions arising from economic deprivation. The decision was made to limit measurement to poverty-linked or "resource-constrained" food insecurity and hunger, in line with its primary intended use of informing policy. Food insecurity can stem from other sources such as limited personal capacity (illness, infirmity) or limited availability of nutritionally adequate and safe foods in the community at large. Similarly, simple physiological hunger, the uneasy or painful sensation caused by lack of food, can result from dieting, fasting, or simply being too involved or too busy to eat. The instrument will be used on other surveys to measure conditions of non-resource-constrained food security.

⁺⁺Food sufficiency is a basic building block to measure food security, which indicates amount and kind of food available.

Monitoring Food Security and Nutritional Status

Issue

Measuring and tracking changes in food security, hunger, and malnutrition are essential to assure that actions taken to eliminate these problems are effective and to identify where and why better programs and redirected resources are needed. The United States devotes nearly \$155 million annually to a National Nutrition Monitoring and Related Research Program that provides estimates of nutritional and dietary status and their causes and consequences.

During the past decade, the United States invested in development of measures of food security and hunger, and in 1995, the first Food Security Supplement to the Census Bureau's Current Population Survey included a series of questions designed to measure food security and hunger. This provides objective national estimates of the prevalence of food insecurity, with and without hunger. Still needed is a food security instrument for smaller and community-level surveys along with better coordination among Federal, State, Tribal, and local monitoring activities to ensure adequate coverage of high-risk subpopulations. Translation of data on food insecurity into information that is understandable to policymakers and the public is needed to better inform them of actions taken. Last, emphasis needs to be given to the monitoring program's capacity to track changes in nutritional status and food security in a welfare-to-work environment.

Priority Actions

- **Refine Measures of Food Security**
- **Monitor Changes in Nutritional Status and Food Security in a Welfare-to-Work Environment**
- **Improve Federal, State, Tribal, and Local Coordination**
- **Enhance Information for the Public and Policymakers**
- **Conduct Research to Improve Monitoring of Food Security and Nutritional Status**

Discussion

The National Nutrition Monitoring and Related Research Program, one of the most sophisticated nutrition and food security monitoring systems in the world, is a mosaic of interconnected Federal and State activities that provides information about the dietary, nutritional, and related health status of Americans; the relationship between diet and health; and the factors affecting dietary and nutritional status. Some 22 Federal agencies presently collaborate under a Ten-Year Comprehensive Plan mandated by the National Nutrition Monitoring and Related Research Act of 1990 and coordinated by the Interagency Board for Nutrition Monitoring and Related Research (IBNMRR). The IBNMRR is the focal point for implementation of the priority actions identified in this section.

The activities outlined in the rest of this section illustrate ways each priority action could be implemented.

1. Refine Measures of Food Security

- Continue to develop standard indicators and survey instruments related to food consumption, food security, nutritional status, and

participation in food assistance and other programs, involving Federal, State, local, and private partners.

- Improve constructs and measures related to community food security; consider, for example, including questions on an individual's frequency of use of food banks, food pantries, and soup kitchens and eligibility for and participation in alternative programs and work activities. Develop community food security capacity measures.
- Provide leadership in developing an international consensus on methodologies for measuring and interpreting food insecurity in developed and developing countries. Urge international agencies to validate, adopt, and recommend food security measures based on U.S. methods, where appropriate, as an international standard for developed nations.

2. Monitor Changes in Nutritional Status and Food Security in a Welfare-to-Work Environment

- Regularly track U.S. food security by integrating standard food security questions into a broad spectrum of national, State, and local surveys, and assure the timeliness of those surveys.
- Expand coverage of high-risk subgroups that are not easily sampled on national surveys, such as the homeless or American Indians living on reservations, through cooperative efforts among all levels of government and civil society. Use oversampling in national surveys or targeted special studies at State or local levels, where feasible.

3. Improve Federal, State, Tribal, and Local Coordination

- Continue to coordinate nutrition and food security monitoring activities using the Interagency Board for Nutrition Monitoring and Related Research (IBNMRR) as the mechanism. Make survey instruments and technical assistance available through the Board's member agencies.
- Develop appropriate statistical procedures for providing State and local estimates using data from relevant national or State surveys.
- Encourage civil society to monitor food security using standard methods. Develop protocols for collecting and aggregating information to increase utility and credibility of information.

4. Enhance Information for the Public and Policymakers

- Link information needs to the planning and implementation of surveys. Ensure that nutrition monitoring programs capture the appropriate information for policymaking in a timely and consistent manner.
- Fill major gaps that exist in the coverage and timeliness of the Nation's information on children and youth.
- Prepare periodic status reports on U.S. food security and nutritional status through joint efforts of civil society and government. Include the scientific and conceptual background along with appropriate uses and interpretation of data.
- Assess and report on the determinants and health outcomes related to food insecurity.

5. Conduct Research to Improve Monitoring of Food Security and Nutritional Status (See Research Chapter)

Research and Evaluation

Issue

Research and evaluation are vital to all facets of food security. They are requisite to understanding the determinants and consequences of food insecurity and undernutrition, developing and evaluating the effectiveness of ways to address the underlying causes and symptoms, ensuring the accurate measurement of the extent of these problems, and securing the continued sustainability and safety of the food supply. Each thematic area described in this paper presents specific needs for basic and applied research and policy analysis that, if undertaken, will contribute substantially to the capacity to achieve sustainable food systems and food security in the United States and abroad.

Assuring adequate investment in food security-related research worldwide through an effective combination of public and private sector research efforts is a difficult challenge. In 1994, for example, Federal agricultural research expenditures comprised only 2 percent of the \$66.5 billion spent on research and development, and this level has been virtually static since 1980. Private sector research has sustained most recent growth in agricultural research. Federal investment in human nutrition research totaled about \$540 million in 1995. In contrast, the four diet-related leading causes of death in the United States are estimated to cost from \$56.3 billion to \$250 billion per year in direct health care costs and lost productivity.

Priority Research and Evaluation Areas

- **Economic Security**
- **Food Access of Food Insecure Individuals**
- **Nutrition Promotion and Food Security Education**
- **Agricultural and Food System Productivity and Sustainability**
- **Climate Change and Mitigation**
- **Food and Water Safety**
- **Monitoring of Nutritional Status and Food Security**
- **Research Quality and Quantity**

Discussion

Investment in agricultural and food security-related research is essential for future food security. Many experts believe we may be under-investing currently with potentially serious consequences for the future. Economic returns to society from public investment in agricultural research are estimated to be extremely high—probably surpassing 35 percent per year. Similarly, returns to investments in nutrition and health research are also likely to be high because of the significant impact diet has on health, productivity, and associated medical costs. Basic research in the agricultural; physical, including biotechnology; social, life, and information sciences, as well as statistical methods, provide the foundation for understanding and achieving food security.

U.S. agriculture has been highly productive in the last 50 years with research-driven technological progress improving labor productivity around 800 percent between 1947 and 1987. The average American farmer now produces food for 128 people—about 94 in the United

States and 34 abroad. With the prospect of greatly expanded future global populations, it is essential that robust productivity growth continue in agriculture and other sectors.

Wherever it is conducted, agricultural research is likely to have significant positive spillover effects with academic and government research benefiting industry; research conducted abroad benefiting domestic U.S. agriculture; and research conducted in the United States benefiting developing countries. Research policy, then, needs to incorporate appropriate incentives so that society benefits from the comparative strengths and interests of different public and private entities including academic, nonprofit, and international research communities along with the commercial sector. Because the private sector often lacks incentives to conduct much of the research necessary to sustain productivity growth, the public sector has a clear mandate to support or conduct basic, pre-technology research. Similarly, other research areas where private incentives to conduct research are low, but potential public benefits are high, include research efforts to protect environmental quality and natural resources, to enhance food safety and nutritional attributes of food, social science research, and research in support of public decisionmaking.

Incentives to maintain and improve the quality of research, along with appropriate focus on matters relevant to food security, need to be identified and implemented. Developing a process that facilitates setting appropriate and strategic research priorities to maintain economic productivity growth, sustainable and safe food systems, and the food security of all consumers should be an integral part of the process. Cultivating cooperative partnerships and food security

research networks involving public and private researchers helps to expand research resources. Implementing mechanisms to protect intellectual property rights (IPRs) helps foster incentives for privately sponsored research. Though sometimes controversial, this allows private firms to capture a share of gains from research and increases their incentive to innovate. However, IPRs may also restrict access to new technology by the scientific community.

The following bullets highlight research issues relevant to the thematic areas identified in this document:

- **Economic Security.** Research pertinent to policymaking and program administration that is dedicated to enhancing economic and food security and moving people from welfare to work is critical. Policy and program analysis of formative and evaluative types is needed. Research to depict alternative poverty measures reflecting costs of essential goods and services in addition to food costs is important and should continue.

Specific priority areas related to economic security include expanded research on poverty, education, labor markets, economic development, education, and impacts of policy and investment on economically vulnerable areas such as enterprise zones and remote Indian reservations. Research and evaluation is also needed to understand the distinct needs of rural communities related to reducing poverty and increasing work opportunities and the cost effectiveness of economic and rural community development

programs. A rigorous program of research, evaluation, and exchange of information will assist in identification of successful strategies for investing in human capital development, alleviating poverty, and increasing employment.

It is also important to measure the effects of policy reforms on children and families. Research agendas should include attention to the role of fathers and the effects of fathering on children's well-being as well as evaluation of the outcomes of Head Start and other quality child care programs on children and families. Collaborative efforts among States, communities, the research community and Federal partners will be needed to identify necessary information to design and implement programs that promote sustained employment.

- **Food Access of Food Insecure Individuals.** Study priorities related to enhancing food access include research to improve management practices affecting the performance and program integrity of the current set of food assistance programs in efficiently meeting the needs of eligible recipients as well as studies to identify and evaluate alternative policy, program, or management approaches in relation to emerging food assistance needs. Data collection and research focusing on the characteristics and situations of vulnerable populations and their nutritional and food security needs will help assess approaches to enhancing access to food and food assistance, including the delivery of nutrition education.

Evaluation of the impacts of food assistance and federally supported food service and nutrition programs on food security, food consumption, and dietary quality of targeted population groups is necessary to evaluate and improve the targeting efficiency of programs on the basis of nutritional risk and need. Also noted is a need to monitor compliance with congressionally mandated nutrition standards for school meals and to respond to emerging program management needs.

- **Nutrition Promotion and Food Security Education.** Increased knowledge about how to stimulate healthy food, nutrition, and physical activity behaviors in the general and low-income populations is key to achieving and maintaining food security. The effectiveness of public nutrition promotion programs, including nutrition education, must be evaluated in terms of successful behavior change and cost-effectiveness. Other priorities for basic and applied nutrition and consumer research to improve effectiveness of nutrition promotion and food security education include support for public and private basic and applied research in nutrition, physiological, and neurological development; continued research into energy balance and its implications in obesity, diabetes, and other conditions as well as research on relationships between "hidden hunger" and obesity. Determination of energy expenditures, body mass indices, and micronutrient status of poorly nourished U.S. population groups contributes to this knowledge. Also, it is important to sponsor economic and social research to understand determinants and correlates of healthy eating and effective consumer food management.

- **Agricultural and Food System Productivity and Sustainability.**

Research priorities to achieve productivity with sustainability throughout agriculture and the food system include strong support of basic and applied agricultural research, including biotechnology, to support productivity growth. Additionally, the need for agricultural economic research leading to improved risk management tools for agricultural producers has been noted, along with examination of the impacts of changing farm and agribusiness structure on food security, the impacts of trade policies and barriers on food security, the impacts of current and emerging information technologies and communication systems on agriculture and the food system, and research on the economic and social impacts of biotechnology in agriculture.

Expanded research on environmentally sensitive agricultural practices, including integrated pest management (IPM), integrated crop management, watershed management, and soil and water conservation, including enhancing irrigation efficiency and timing, are crucial to improve resource conservation and environmental quality. Nutrient excesses in watersheds may lead to “dead zones” incapable of sustaining fish or other aquatic life forms. Socioeconomic research is also important to assess the impacts of alternative environmental policies including regulation.

- **Climate Change and Mitigation.**

Research on climate change and global warming effects related to agriculture includes research on methane capture systems on waste lagoons, improved fertilizer management to decrease nitrous oxide

emissions, and irrigation efficiencies. Additionally, research on the impact of climate variability due to El Niño-Southern Oscillation phenomena on crop yields, water resources, and energy demands will undergird policy efforts to mitigate adverse impacts with potentially detrimental effects on food security.

- **Food and Water Safety.** Food and water safety research priorities include research on food and drinking water safety hazards from microbiological and chemical sources and improved risk assessment methods, research on food production and handling practices from farm to table and their relationship to food safety, research on the short- and long-term health impacts of exposure to food and drinking water safety hazards, and studies to assess the most effective ways of communicating food safety information to different target audiences.

- **Monitoring of Nutritional Status and Food Security.** Research to improve monitoring of food security and nutritional status includes improved methods for survey sampling, design, data collection, and measurement as well as procedures to permit reliable estimation of food security status, dietary status, breastfeeding rates, and nutrition- and health-related indicators for high-risk groups that are not well covered by existing surveys. Measuring food security longitudinally in conjunction with income and program participation enables better understanding of the dynamics of food insecurity. Similarly, assessment of the impacts of sporadic, cyclical, and long-term food insecurity on health and cognitive function will expand understanding of its consequences to quality of life and productivity. Criteria for interpreting

nutrition and health indicators for population subgroups including infants and children, pregnant and lactating women, and the elderly need further development.

The actions listed below elaborate on the research and evaluation priority areas.

- 1. Expand Research to Improve Household and Community Economic Security**

- Conduct a rigorous program of research, evaluation, and exchange of information to identify successful strategies for investing in human capital development, alleviating poverty, and encouraging education and employment. Measure the effects of policy reforms on children and families. Work collaboratively with States, communities, and the research community along with Federal partners to identify critical information needed to design and implement programs that promote sustained employment.
- Continue research to depict alternative poverty measures that reflect costs of essential goods and services in addition to food costs.
- Ensure that research agendas pay adequate attention to the role of fathers in families and the effects of fathering on children’s well-being.
- Document the economic impacts of space-specific policies and investments in economically vulnerable areas, such as enterprise zones and remote Indian reservations.
- Conduct research and program evaluation to measure program performance and outcomes for Head Start families and other quality child care programs.

- Conduct research to understand the distinct needs of rural communities in achieving success in reducing poverty and increasing work opportunities. Develop and evaluate effectiveness of economic and rural community development programs.

2. Sponsor Research to Enhance Access of Food Insecure Individuals to Food and Food Assistance

- Sponsor studies to furnish information to improve management practices affecting the performance, including program integrity, of current food assistance programs in efficiently meeting the needs of eligible recipients.
- Sponsor studies to identify and evaluate alternative policy, program, or management approaches along with emerging food assistance needs.
- Evaluate through research the impacts of food assistance and federally supported food service programs on food security, food consumption, and dietary quality for targeted population groups. Sponsor studies to improve the targeting efficiency of programs, including the delivery of nutrition education, on the basis of nutritional risk and needs of vulnerable populations.
- Assess food consumption patterns of homeless persons as reflected in the 1997 Interagency Council on the Homeless survey, conducted by the Census Bureau, and compare them with 1987 data to identify progress and barriers.
- Sponsor studies to enable effective use of electronic benefit transfer systems among the target audience in food assistance programs.

- Monitor compliance with congressionally mandated nutrition standards for school meals and respond to emerging program management needs.

3. Sponsor Research on Nutrition Promotion and Food Security Education

- Conduct research on how to stimulate healthful food, nutrition, and physical activity behaviors in the general population and low-income populations.
- Support public and private basic and applied research in nutrition and physiological and neurological development. Continue to conduct research into energy balance and its implications in obesity, diabetes, and other conditions as well as research on relationships between “hidden hunger” and obesity. Determine energy expenditures, body mass indices, and micronutrient status of poorly nourished populations.
- Establish a decisionmaking framework and criteria for the development of public nutrition promotion programs. Use information on health, nutritional, and educational status of vulnerable subgroups and information on consumer food demand and related behaviors.
- Sponsor economic and social research to understand determinants and correlates of healthy eating and effective consumer food management. Assess how changes in consumer demand for food and changing consumer lifestyles affect health, nutrition, and food safety.
- Develop and evaluate new information technologies and nutrition promotion strategies to deliver nutrition information to consumers and

producers so that it can be used effectively in making food choices.

- Assess the effectiveness of educational interventions in changing behavior. An example is the National Institutes of Health’s (NIH) research on the design, implementation, and evaluation of behavioral and social interventions to promote health and prevent disease.
- Sponsor cost-benefit and cost-effectiveness analysis of nutrition promotion programs including nutrition education.

4. Sponsor Research Contributing to a Productive and Sustainable Agricultural Sector, Food Systems, and Environment

- Conduct and support basic and applied agricultural research to support productivity growth, including biotechnology.
- Conduct research leading to improved risk management tools for agricultural producers.
- Examine the impacts of changing farm and agribusiness structure on food security.
- Evaluate trade policies and barriers for impacts on food security.
- Assess the impacts of current and emerging information technologies and communication systems on agriculture and the food system.
- Conduct research on economic and social impacts of biotechnology in agriculture.
- Expand research on environmentally sensitive agricultural practices, including integrated pest management (IPM), integrated crop management, and soil and water conservation, including enhancing irrigation efficiency and timing.

- Conduct socioeconomic research to assess the impacts of environmental regulation.

5. Sponsor Research on Climate Change

- Increase and improve research on methane capture systems on waste lagoons and improve fertilizer management to decrease nitrous oxide emissions and irrigation efficiencies.
- Conduct research and analyses of the impact of climate variability due to El Niño-Southern Oscillation phenomena on crop yields, water resources, and energy demands.

6. Sponsor Research on Food and Water Safety

- Conduct research on food and drinking water safety hazards from microbiological and chemical sources and improve risk assessment methods.
- Formulate new research methods for rapid and cost-effective testing for the presence of pathogens in foods and to enhance understanding of pathogen resistance.
- Conduct research on food production and handling practices from farm to table and their relationship to food safety.
- Sponsor research on the short- and long-term health impacts of food and drinking water safety hazards.
- Conduct studies to assess the most effective ways of communicating food safety information to different target audiences.

- Establish an interagency coordinating body to review food safety responsibilities and research programs of the various agencies with a view to recommending direction of research funds and programs in accordance with those responsibilities.

7. Conduct Research to Improve Monitoring of Food Security and Nutritional Status

- Improve methods for survey sampling, design, data collection, and measurement procedures to permit reliable estimation of food security status, dietary status, breastfeeding rates, and nutrition- and health-related indicators for high-risk groups that are not well covered by existing surveys.
- Continue to test food security-related questions at State and local levels and the feasibility of incorporating them into State level nutrition surveillance systems as well as those of nongovernmental groups.
- Measure food security longitudinally in conjunction with income and program participation to determine dynamics of food insecurity. Assess the cognitive and health impacts of sporadic, cyclical, and long-term food insecurity.
- Develop criteria for interpreting nutrition and health indicators for population subgroups including infants and children, pregnant and lactating women, and the elderly.

8. Enhance Quality and Quantity of Food Security-Related Research

- Enhance support for USDA's National Research Initiative programs that support food security initiatives.
- Develop cooperative partnerships and joint mechanisms between public and private researchers, including government agencies. USDA, for example, administers over 200 Cooperative Research and Development Agreements (CRADAs) between Federal laboratories and private industry as well as the Community Food Projects Competitive Grants Program (\$2.5 million per year through 2002).
- Establish and promote food security research networks, nationally and globally.

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Regional Differences in Family Poverty

That poverty rates vary considerably across regions has been confirmed; reasons for these variations need to be understood in order to design appropriate Federal antipoverty policies. This study was undertaken to examine how characteristics of the poor and nonpoor vary among regions and to determine which factors contribute to regional differences in poverty rates.

Who Is in Poverty?

The official U.S. poverty statistics are based on a methodology developed at the Social Security Administration in the 1960's, which sets income thresholds below which a family is classified as poor. The thresholds vary with total family size, number of family members who are children, and whether the householder is 65 years or older. Each year the thresholds are adjusted for inflation by indexing to the CPI-U. The official U.S. poverty rate in 1994 was 11.6 percent.

The National Academy of Sciences recommends that poverty thresholds vary over geographic units to reflect differences in the cost of housing. Other alternative methods of measuring poverty incorporate additional adjustment factors, such as the value of nonmedical, in-kind government program benefits—food stamps, housing subsidies, and subsidized school lunches. When these factors are considered, the poverty rate in 1994 was 10.4 percent.

Regional family poverty rates are presented in table 1. Patterns of poverty are generally consistent, regardless of measure. The West South Central region, New York, and California are above the national average, whereas New England, the North Central regions, the Middle Atlantic region (excluding New York), the South Atlantic region, the Mountain region, and the Pacific region (excluding California) are consistently below the national average—although their relative rankings vary according to the measure of poverty used.

Regional Differences in Poverty for Specific Groups

Using data from the March 1995 Current Population Survey, this study examines socioeconomic and demographic characteristics of about 40,000 U.S. families and how poverty rates vary over regions for specific subgroups of the population. Table 2 presents poverty rates for families with different characteristics by region.

In all 11 geographical areas, the poverty rate for families in which the head does not have a high school diploma was much greater than the overall family poverty rate. The poverty rate for this group was especially high in areas of high overall poverty—the West South Central region, New York, and California.

Families headed by a single woman with at least one child under age 6 had high rates of poverty in all regions; however, the poverty rate was somewhat below the national average in the high-poverty West South Central region and slightly above the national average in low-poverty New England. Highest rates were in New York State and the East South Central region.

Families that have a Black or Hispanic head had high rates of poverty in all regions. For Blacks, highest rates were in the West South Central, Pacific (excluding California), and New England geographic divisions. Lowest poverty rates for families headed by Blacks were in California. Hispanic families had highest rates in New York State and New England, with lowest rates in the South Atlantic region.

Families headed by a recent immigrant from a non-English-speaking country had high poverty rates especially in the East South Central, Mountain, New York State, and the West South Central regions. Poverty rates for this group were lowest in the Middle Atlantic region (excluding New York State).

Regional Differences in the Composition of the Poor

New England and the Pacific regions (excluding California) had relatively low proportions of poor with family heads who lacked a high school diploma (table 3). Families with female heads are a higher proportion of the poor in the relatively low-poverty New England and East North Central regions than in the high-poverty West South Central region and California. Black families make up a higher proportion of the poor (and nonpoor) in the Southern regions than elsewhere. Hispanic families are a higher proportion (53 percent) of the poor (and nonpoor) in California. Immigrant families are a larger share of both the poor and nonpoor in New York and California.

Nationwide, most of the poor are either headed by a female (53 percent) or by someone without a high school diploma (40 percent). In New England, New York, and the East North Central regions, over 60 percent of the poor families are headed

Table 1. Regional differences in family poverty rates, 1994

Census geographic division	Poverty rate	Poverty rate adjusted for cost of living	Poverty rate adjusted for cost of living and in-kind benefits
		<i>Percent</i>	
New England Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut	8.2	9.8	9.4
Middle Atlantic (excluding New York) New Jersey, Pennsylvania	8.9	9.1	8.1
New York State	14.8	16.1	15.3
East North Central Ohio, Indiana, Illinois, Michigan, Wisconsin	10.7	10.3	8.9
West North Central Minnesota, Iowa, Missouri, North Dakota, South Dakota Nebraska, Kansas	9.4	8.1	7.2
South Atlantic Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida	10.6	10.2	9.2
East South Central Kentucky, Tennessee, Alabama, Mississippi	13.1	11.0	9.7
West South Central Arkansas, Louisiana, Oklahoma, Texas	15.8	14.5	12.6
Mountain Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada	9.7	9.0	8.0
Pacific (excluding California) Washington, Oregon	8.7	9.0	8.4
California	14.4	17.1	15.9
United States	11.6	11.6	10.4

Source: Triest, R.K., 1997, *Regional differences in family poverty*, *New England Economic Review*, January/February, pp. 3-17.

Table 2. Regional differences in poverty rates for specific groups, 1994

Census geographic division	All families	Head with no high school diploma ¹	Female head with children less than 6 years old	Black family head	Hispanic family head	Head immigrated within last 10 years ²
	<i>Percent</i>					
New England	8.2	19.9	62.9	33.4	37.4	21.9
Middle Atlantic (excluding New York)	8.9	21.1	63.2	29.2	25.5	17.2
New York State	14.8	36.9	71.5	27.9	37.8	41.8
East North Central	10.7	26.1	64.1	32.6	20.0	22.8
West North Central	9.4	24.5	52.6	30.2	21.0	21.6
South Atlantic	10.6	24.1	58.3	22.1	18.8	21.5
East South Central	13.1	27.1	68.8	28.3	20.3	47.0
West South Central	15.8	36.6	60.1	33.8	30.2	41.4
Mountain	9.7	27.8	63.1	28.6	26.3	45.0
Pacific (excluding California)	8.7	18.5	57.5	33.4	20.4	28.2
California	14.4	36.5	63.2	19.7	28.8	36.1
United States	11.6	28.7	62.5	27.4	27.9	32.5

¹Computed based only on families where neither the head nor spouse was more than 65 years old.

²Individuals were classified as immigrants only if they were born in a country where English is not the dominant language.

Source: Triest, R.K., 1997, *Regional differences in family poverty*, *New England Economic Review*, January/February, pp. 3-17.

by a female. Forty-nine percent of the poor families in California and the West South Central region have a head who didn't finish high school.

These descriptive statistics suggest that both economic and demographic factors help to explain regional differences in poverty rates. Educational attainment varies over regions and is strongly associated with a reduced probability of being poor. Demographic factors such as the family being headed by a single parent or by a member of a minority are associated with an increased probability of being poor.

Relative Importance of Factors Underlying Regional Differences in Family Poverty

A set of probit regressions was used to examine determinants of family poverty status. When only geographic area indicator variables were included, the probability of being poor is lower in New England than in the other areas.

The second regression added variables indicating whether the family is headed by a single woman (and the number of children under age 6 in these families)

or by a married couple. A poverty threshold variable was also included in this regression. Since the poverty thresholds increase with family size, a region with a higher-than-average share of large families might be expected to have a higher-than-average poverty rate. However, only small differences in the geographic area coefficients were observed (table 4). Therefore, although these variables are useful in predicting whether a given family will be poor, they are not as helpful in explaining interregional differences in poverty.

Table 3. Regional differences in the composition of the poor, 1994

Census geographic division	Head with no high school diploma ¹	Female family head	Black family head	Hispanic family head	Head immigrated within last 10 years
			<i>Percent</i>		
New England	30.8	63.3	17.6	17.2	6.4
Middle Atlantic (excluding New York)	35.4	57.2	29.3	14.8	4.6
New York State	41.4	60.1	30.7	30.4	16.9
East North Central	34.0	62.2	33.1	5.3	2.5
West North Central	32.7	43.7	18.1	2.7	2.0
South Atlantic	39.6	55.3	42.4	9.6	4.2
East South Central	43.1	58.2	41.1	1.3	.5
West South Central	49.0	43.8	30.0	33.8	6.2
Mountain	36.7	48.3	7.2	38.5	10.7
Pacific (excluding California)	20.2	49.4	9.1	5.9	7.0
California	49.3	41.6	8.6	53.3	19.5
United States	40.3	52.6	27.5	21.4	7.6

¹Computed based only on families where neither the head nor spouse was more than 65 years old.

Source: Triest, R.K., 1997, *Regional differences in family poverty*, *New England Economic Review*, January/February, pp. 3-17.

A third regression added a measure of a family's potential earnings—the amount that could be earned by adult family members if all of them were to work full time for the entire year. Wage rates were imputed for sample members who were not working. Regional variables were not included in the wage imputations. Thus, the distribution of the earnings capacity measure will vary over regions because of differences across regions in the distribution of workers' characteristics. How these characteristics are “priced” in the regional labor markets will not affect the distribution of the earnings capacity measure. For example,

regional variation in the earnings capacity measure will capture differences in the level of educational attainment across regions but not interregional differences in the economic return to education.

All of the geographic coefficients decrease in size when the earnings capacity variable is included in the specification—most of them, substantially (table 4). Only the one for New York remains statistically significant. Thus, a major reason why other regions have higher poverty rates than does

New England is that a larger proportion of their populations have low earnings capacity. Once the ability of families to work their way out of poverty is controlled for, the regional effects are much smaller. Interregional variation in the distribution of human capital appears to be the dominant force in generating the regional disparities in poverty rates.

Further regressions included additional variables that measure constraints in the labor marketplace related to discrimination, poor language skills, or lack of demand (recent immigration, for example).

Table 4. Family poverty probit regressions¹

Census geographic division	Division effects only	Poverty threshold and selected demographic variables added	Earnings capacity added
Middle Atlantic (excluding New York)	.009 (.010)	.016 (.012)	.007 (.013)
New York State	.081 (.012)	.065 (.013)	.059 (.014)
East North Central	.032 (.009)	.027 (.010)	-.003 (.011)
West North Central	.016 (.011)	.036 (.012)	.011 (.013)
South Atlantic	.030 (.009)	.035 (.010)	.009 (.012)
East South Central	.061 (.011)	.065 (.013)	.018 (.013)
West South Central	.091 (.011)	.105 (.012)	.053 (.013)
Mountain	.019 (.011)	.029 (.013)	.000 (.014)
Pacific (excluding California)	.007 (.012)	.017 (.014)	-.004 (.015)
California	.075 (.010)	.072 (.012)	.037 (.013)
In (Poverty threshold)		.175 (.007)	.343 (.008)
In (Earnings capacity)			-.303 (.005)
Married couple family		-.169 (.009)	-.019 (.009)
Female family head		.064 (.009)	.014 (.009)
Number of own children less than 6 in a female-headed family		.128 (.005)	.030 (.006)

In summary, much of the variation in poverty rates across regions can be explained by variation in the potential earnings of families relative to the poverty thresholds determined by family size and composition. Recent Federal antipoverty policy gives more leeway to States in designing programs, setting limits on the time that individuals can collect benefits, and requiring a greater degree of labor market activity by welfare recipients. Although the primary goal of welfare reform is not to reduce inter-regional differences in poverty, Government policy can affect differences in the poverty rate across regions. Human capital accumulation may be accelerated with greater involvement of the low-income population in the labor force, but this requires major new training and education programs. Low-skilled workers face increasing competition for jobs in areas that have large welfare populations. In the absence of changes in the inter-regional distribution of human capital, interregional differences in poverty rates are likely to continue.

Source: Triest, R.K., 1997, Regional differences in family poverty, *New England Economic Review*, January/February, pp.3-17.

¹For binary variables, the coefficients are changes in the probability of being in poverty associated with the variable being equal to one rather than zero; for continuous variables, the coefficients are the partial derivatives of the probability of being in poverty. Standard errors are in parentheses.

Source: Triest, R.K., 1997, *Regional differences in family poverty*, *New England Economic Review*, January/February, pp. 3-17.

Work Schedules of Low-Educated American Women and Welfare Reform

In 1996, the President signed the Personal Responsibility and Work Opportunity Reconciliation Act, initiating a major reform of the U.S. welfare system. One of the main objectives of welfare reform was to move mothers permanently from welfare to employment. It has been estimated that 10 to 20 percent of nonemployed American mothers with young children do not seek employment because of child care availability and affordability problems. In one study of mothers who received Aid to Families with Dependent Children (AFDC), 60 percent reported that a lack of child care prevented them from participating in work programs.

This article examines the work schedules of low-educated employed mothers in the United States in an effort to clarify who are most likely to be successful in the welfare-to-work transition. Findings indicate that less educated mothers are more likely to work a nonstandard schedule than are other women; the main reason they work such schedules relates to the occupations in which they work; and these are the occupations that are expected to grow in the future. Because formal day care is less available at nonstandard times, the implication is that if low-educated women on welfare are to be encouraged to take jobs similar to those of other low-educated women, their “off-hours” child care needs will have to be addressed.

Data and the Sample

Data were from the May 1991 Current Population Survey (CPS). The CPS is a nationally representative monthly survey conducted by the U.S. Bureau of the Census. The May 1991 CPS included a supplement with questions on work schedules for all first and second jobs.

The sample for this study included all civilian women ages 18 to 34 with a high school education or less, with at least one child under age 14, who had at least one job for pay the previous week, and whose primary job (the one in which they worked the most hours) was in a nonagricultural occupation. There were 2,862 women with these characteristics.

Nonstandard Work Schedule

Persons who worked fixed day schedules Monday through Friday during the week before the interview were considered to have a standard work schedule. Those who work irregular hours, irregular days, rotating hours or days, weekend days, and regular evening or night hours were regarded as having a nonstandard work schedule.

Whereas 62 percent of all employed women work fixed daytime, weekdays only schedules, only 57 percent of low-educated employed women, ages 18 to 34 with children under age 14, reported being on this “standard schedule.”

Occupations and Work Schedules

A major determinant of standard versus nonstandard work schedules is occupation. Many of the service occupations show relatively high percentages of evening, nighttime, and weekend work. The service sector is growing because of the increasing employment of women and the aging of the population. As more and more women are employed during the daytime, demand for nighttime and weekend services increases to accommodate shoppers, dining out, and the purchase of other homemaking services formerly done by full-time homemakers. Dual-earner couples have increased the demand for recreation and entertainment during evenings, nights, and weekends. Also, the aging of the population has increased the demand for medical services over a 24-hour day, 7-day week.

Among women in the sample who were working in the 2nd, 3rd, and 4th most common occupations—cashiers, nursing aides, and waitresses—at least 40 percent work nonstandard hours and nonstandard days. (The most common occupation was secretaries; few in this occupation worked a nonstandard schedule.)

Work Schedules and Child Care

Women with preschool-age children are almost 1½ times more likely to work nonstandard hours than are women without children; women with school-age children are only nine-tenths as likely to work such hours as are childless women. Mothers of preschool-age children may be working a nonstandard schedule to accommodate their child care needs.

Previous studies have found that when two-earner married couples work different shifts, virtually all fathers are the principle providers of child care when mothers are employed. But, among low-educated single mothers, problems of child care availability constrain women's employment—without regard to their work schedule.

Why Women With Children Work Other Than a Fixed Day Shift

When *all* women ages 18 to 34 with children under age 14 were compared with *only* those with a high school education or less, there was little difference in the percentages for both groups—suggesting that education is not a significant explanation as to why women work nonstandard hours. If only low-educated mothers are analyzed, 31 percent of those with children under age 5 compared with 18 percent of those with children between 5 and 13 report “better child care arrangements” as their main reason for working nonstandard hours.

A higher percentage of married (31 percent) than unmarried mothers (19 percent) said “better child care” was their main reason for working nonstandard hours. This implies that the spouse shares child care responsibilities. The most frequent reason reported—especially by women with school-age children and by unmarried mothers—was that it was a “requirement of the job.” For all low-educated mothers, 46 percent said either they could not get another job or it was a requirement of the job to work nonstandard hours. Thus, it may be concluded that many low-educated mothers regard such employment as an accommodation to labor market needs and not as a personal preference.

Personal Characteristics of Low-Educated Mothers Under Age 35 Who Work Nonstandard Schedules

Marriage for low-educated mothers significantly decreases the likelihood of working nonstandard hours and/or nonstandard days. In contrast, having more than one child and having a child under age 5 increase the likelihood of working nonstandard schedules among these women. Compared with Whites, those who are Black, Hispanic, or “other” are less likely to work both nonstandard hours and nonstandard days. Those who work less than 35 hours a week are two to three times as likely to work a nonstandard schedule as those who work full time.

Implications for Welfare Reform

Both family and job characteristics are important predictors of nonstandard employment schedules for low-educated mothers under age 35. These women are concentrated in some of the jobs projected to grow the most by 2005; these same occupations have high percentages working either nonstandard hours, days, or both (e.g., 91 percent of waiters and waitresses, 88 percent of home health aides, 82 percent of cashiers, and 76 percent of retail salespersons). Therefore, many of the jobs available for mothers moving from welfare to paid work will be from these types of occupations and will entail working nonstandard schedules.

Results of this study indicate that (1) low-educated mothers are disproportionately represented in occupations with high rates of nonstandard schedules; (2) many of these women who work nonstandard hours do so primarily for labor market rather than personal reasons; and (3) job characteristics are stronger determinants of employment during nonstandard times than are family characteristics. Thus, low-educated mothers appear drawn into working nonstandard hours by a lack of options. Because this situation is likely to continue—even increase—given current occupational projections, child care will need to be expanded during nonstandard times, including evenings and weekends if mothers on welfare are to succeed in the job market.

Presser, H. B. and Cox, A.G., 1997, The work schedules of low-educated American women and welfare reform, *Monthly Labor Review* 120(4):25-34.

Family Finances in the U.S.: Recent Evidence From the Survey of Consumer Finances

Between 1992 and 1995, changes in family finances were influenced by various macroeconomic events and long-term trends. The period was one of continuing economic expansion: the unemployment rate in 1995 was down to 5.6 percent (from 7.6 percent in 1992); inflation was subdued at an average annual rate of 2.7 percent; and interest rates on new conventional mortgages were 7.6 (from 9.7 percent in 1992).

Family finances were affected by a growth of holdings in stocks and mutual funds; the number of mutual funds available to families continued to expand. Also, employers increasingly offered tax-deferred savings plans that allowed participants to invest in corporate equities. Growth in credit card holding was made possible by extensive marketing, relaxation of credit standards, lower interest rates, and cash rebate programs.

A key demographic trend was the aging of the post World War II cohort. The proportion of families headed by persons between 45 and 54 years of age rose from 16.2 percent in 1992 to 17.8 percent in 1995. Financial decisions of these families are likely to be influenced by the cost of college education for their children and the need to save for their own retirement.

Data from the 1995 Survey of Consumer Finances (SCF) provide a detailed view of changes in the income, net worth, assets, and liabilities of families between 1992 and 1995. Major findings were (1) the rise in median family income and median family net worth in constant dollars; (2) increased ownership of publicly traded stock (and mutual funds) from about 34 percent of total financial assets in 1992 to about 40 percent in 1995; and (3) little evidence of increased debt payment problems—even though the share of families with debt and the median amount of their debt rose.

Family Income

Median and mean family income reported in 1995 (for the previous year) was higher than in 1992, but not as high as in 1989. Between the 1989 and 1995 surveys, median and mean income declined for families headed by persons in the 35 to 54 age groups. Median and mean income also declined for all educational groups, with the largest declines for the groups with at least some college education. Median income rose somewhat for non-White and Hispanic families, but fell for other families. Gains in median and mean income were limited to the group with net worth between \$25,000 and \$49,999.

Family Saving

Overall, the proportion of families reporting that they saved in the preceding year fell from 57 percent in 1992 to 55 percent in 1995. However, a somewhat higher proportion of families with heads ages 75 and over were savers in 1995 than in 1992. The most common reason for saving given in 1995 was to increase liquidity (33 percent), followed by saving

for retirement (24 percent). Between 1989 and 1995, families became progressively more likely to report saving for retirement—perhaps reflecting the rising share of baby boom families in the population as well as the perceived uncertainty of future retirement benefits. Saving for education also continued to rise, a trend that is likely related to demographic shifts and continuing increases in the cost of a college education.

Net Worth

After falling between 1989 and 1992, both median and mean net worth rose from 1992 to 1995 (see table). Median net worth increased by 6.8 percent and mean net worth increased by 2.7 percent from 1992 to 1995. Generally, a rise in median net worth that is larger than a rise in the mean suggests relatively less growth for wealthy families than for families in the middle of the wealth distribution.

Between 1992 and 1995, median net worth rose for groups with incomes of less than \$25,000. Mean net worth rose for all groups except those with income between \$25,000 and \$49,999. From 1992 to 1995, median net worth increased for families with heads less than age 55, while the mean for each of these groups held steady or declined. For families with heads ages 65 to 74, median net worth decreased slightly while mean net worth increased. The data within each year show net worth rising with the level of education of the family head, but between 1992 and 1995, both median and mean net worth rose markedly only for the groups with a high school diploma or less.

Family net worth, by selected characteristics of families, 1989, 1992, and 1995
(thousands of 1995 dollars except as noted)

Family characteristics	1989			1992			1995		
	Median	Mean	Percentage of families	Median	Mean	Percentage of families	Median	Mean	Percentage of families
All families	56.5	216.7	100.0	52.8	200.5	100.0	56.4	205.9	100.0
Income (1995 dollars) ¹									
Less than \$10,000	1.6	26.1	15.4	3.3	30.9	15.5	4.8	45.6	16.0
\$10,000 - \$24,999	25.6	77.9	24.3	28.2	71.2	27.8	30.0	74.6	26.5
\$25,000 - \$49,999	56.0	121.8	30.3	54.8	124.4	29.5	54.9	119.3	31.1
\$50,000 - \$99,999	128.1	229.5	22.3	121.2	240.8	20.0	121.1	256.0	20.2
\$100,000 and more	474.7	1372.9	7.7	506.1	1283.6	7.1	485.9	1465.2	6.1
Age of head (years)									
Less than 35	9.2	66.3	27.2	10.1	50.3	25.8	11.4	47.2	24.8
35 - 44	69.2	171.3	23.4	46.0	144.3	22.8	48.5	144.5	23.2
45 - 54	114.0	338.9	14.4	83.4	287.8	16.2	90.5	277.8	17.8
55 - 64	110.5	334.4	13.9	122.5	358.6	13.2	110.8	356.2	12.5
65 - 74	88.4	336.8	12.0	105.8	308.3	12.6	104.1	331.6	11.9
75 and more	83.2	250.8	9.0	92.8	231.0	9.4	95.0	276.0	9.8
Education of head									
No high school diploma	28.5	92.1	24.3	21.6	75.8	20.4	26.3	87.2	19.0
High school diploma	43.4	134.4	32.1	41.4	120.6	29.9	50.0	138.2	31.6
Some college	56.4	213.8	15.1	62.6	185.4	17.7	43.2	186.6	19.0
College degree	132.1	416.9	28.5	103.1	363.3	31.9	104.1	361.8	30.5
Race or ethnicity of head									
White non-Hispanic	84.7	261.4	75.1	71.7	237.8	75.1	73.9	244.0	77.5
Non-White or Hispanic	6.8	82.1	24.9	16.9	87.9	24.9	16.5	74.4	22.5
Current work status of head									
Professional, managerial	106.6	262.7	16.9	78.8	248.5	16.8	89.3	252.8	15.9
Technical, sales, clerical	40.9	98.9	13.4	48.0	105.4	14.8	43.3	109.3	14.9
Precision production	58.4	94.2	9.6	38.4	85.5	7.0	43.5	79.3	8.2
Machine operators and laborers	23.1	67.2	10.6	23.5	56.8	10.0	37.3	70.0	13.1
Service occupations	9.3	53.2	6.6	15.7	52.9	6.2	15.8	60.0	6.6
Self-employed	200.7	765.4	11.2	155.6	644.3	10.9	152.9	731.5	9.7
Retired	77.5	199.2	25.0	76.3	201.2	26.0	81.6	218.3	25.0
Other not working	0.7	62.9	6.7	5.5	68.5	8.2	4.5	60.4	6.5
Housing status									
Owner	119.9	311.7	63.8	106.1	289.6	63.9	102.3	295.4	64.7
Renter or other	2.4	49.4	36.2	3.6	42.7	36.1	4.5	42.2	35.3

¹For the calendar year preceding the survey.

Source: Kennickell, A.B., Starr-McCluer, M., and Sunden, A.E., 1997, *Family finances in the U.S.: Recent evidence from the Survey of Consumer Finances*, Federal Reserve Bulletin 83(1):1-24.

Median net worth decreased for homeowners over the 6-year period, whereas it increased for renters. In 1995, mean net worth for both groups remained below 1989 levels. The results for homeowners do not appear to be driven by shifts in the level of home values, which generally rose over the period. Possible explanations could be the influx of new homeowners, an increase in the proportion of homeowners with mortgages, and a rise in the amount of mortgage debt owed.

Financial Assets

The share of financial assets in families' total asset holdings has risen steadily, from 28 percent in 1989 to 31 percent in 1992 to 34 percent in 1995. Substantial shifts in the composition of financial assets from 1992 to 1995 generally continued trends observed from 1989 to 1992. The share of financial assets held in transaction accounts and certificates of deposit, the traditional savings vehicles, fell sharply, from 30 percent in 1989 to 26 percent in 1991 to only 19 percent in 1995. At the same time, the share held in tax-deferred retirement accounts, publicly traded stocks, and mutual funds rose strongly, from 38 percent in 1989 to 49 percent in 1992 to 56 percent in 1995.

Although the proportion of families having at least some financial assets rose only slightly (from 90 percent in 1992 to 91 percent in 1995), ownership increased more among families earning less than \$10,000 a year, among non-White and Hispanic families, and among families headed by precision production workers or machine operators and laborers. Overall, median financial assets rose slightly; this gain was shared by most demographic groups except families with heads aged 65 and older.

Survey data for 1995 indicate continued expansion in the ownership of mutual funds of all types (not including money market funds and funds held as part of a retirement account). The median value of these holdings also continued upward. These changes are not surprising given the run-up in the stock market, the surge in the number of mutual funds available, and the intense marketing of funds.

The ownership rate rose among non-Hispanic Whites but remained unchanged for other families. Ownership rates increased the most in families with income over \$50,000 and in families with heads between ages 45 and 54. Median holdings for those owning mutual funds show a different picture, however, with older families and families at both the top and bottom of the income distribution showing the largest increases. A decrease in median holdings was reported by non-White or Hispanic families, while non-Hispanic Whites had higher holdings.

The percentage of families with retirement accounts grew in almost every demographic group between 1992 and 1995. The SCF questions on retirement accounts cover Keogh accounts; individual retirement accounts; and employer-sponsored plans from which loans or withdrawals can be made, such as 401(k) accounts. The proportion of families owning these assets rose strongly (from 38 percent in 1992 to 43 percent in 1995), and the share of families' financial assets accounted for by retirement assets also rose. These assets complicate straightforward interpretation of families' portfolios because they may comprise holdings of stocks, bonds, mutual funds, real estate, limited partnerships, or virtually any other type of asset.

In general, coverage by any type of employer-sponsored pension plan remained fairly constant over 1989-95: around 40 percent of all families had coverage from a current job. However, the type of coverage has shifted considerably. The percentage of families participating in a 401(k)-type plan increased dramatically over the period, with 19 percent of families covered under such a plan in 1989 and 27 percent in 1995. At the same time, coverage by defined-benefit plans declined from 28 percent in 1989 to 19 percent in 1995. The shift toward 401(k)-type plans places a more obvious demand on workers to plan for their retirement. Participation in 401(k)-type plans is voluntary. According to the 1995 SCF, slightly more than one-fourth of family heads who were eligible to participate in such a plan failed to do so in 1995. The data indicated this choice is related strongly to income: heads of families with incomes of less than \$25,000 were less likely to participate than others.

Nonfinancial Assets

The primary residence remained the largest single part of families' nonfinancial assets. Between 1992 and 1995, home ownership moved up slightly to 65 percent. The median home value (of the primary residence) among homeowners showed a similar pattern increasing from \$86,800 in 1992 to \$90,000 in 1995. For the different demographic groups, changes in ownership rates were mixed. For owners, the median house value generally rose for families with incomes of less than \$100,000 and fell somewhat for higher income families. This difference may partly reflect low rates of price appreciation for more expensive houses.

Ownership of vehicles fell somewhat from 1992 (86 percent) to 1995 (84 percent), but these items remained the most widely held nonfinancial assets. The decline in ownership was spread over most of the demographic groups, although ownership rose for families with incomes of less than \$10,000. A part of the decrease in the percentage of families owning vehicles may be attributed to an increase in the percentage leasing vehicles, which rose from 3 percent in 1992 to about 5 percent in 1995. Most of the increase was concentrated among families with incomes of \$25,000 or more.

Overall, ownership of investment real estate fell from slightly over 19 to slightly less than 18 percent of all families from 1992 to 1995. The fraction of families owning business assets fell slightly between 1992 and 1995. For the remaining nonfinancial assets (a broad category of tangible assets including artwork, jewelry, precious metals, and antiques), ownership rates rose from 8 to 9 percent between 1992 and 1995, while the median amounts for those holding such assets rose from \$7,600 to \$10,000. The median value of these assets rose more among older (65 years and over) and lower income (less than \$25,000) families.

Liabilities

Family debt and family assets rose strongly from 1989 to 1995. However, family debt as a proportion of assets (the leverage ratio) held fairly steady at about 16 percent over the period. The proportion of families with debt rose slightly between 1992 and 1995 (from 74 to 75 percent). Following a similar pattern, the median amount of debt out-

standing for families with debt rose 15 percent from 1992 (\$19,500) to 1995 (\$22,500) after having been flat over the previous 3 years. The increases between 1992 and 1995 in both the prevalence of borrowing and the median amount of debt owed would normally be expected in a period of economic expansion. The increases were widespread among demographic groups, with the salient exceptions of families in the highest income group, families with self-employed heads, and families with heads 75 years old or older.

The prevalence of debt tends to increase with family income, but the sizes of the increases are fairly small as the level of income rises above \$25,000. The median amount of debt owed shows much larger increases with income, likely because of borrowing associated with the acquisition of nonfinancial assets. By age group, the proportion of families borrowing varies only a little for the groups with heads younger than 55, but it falls off quickly after that. The drop-off in median borrowing in these older groups is even sharper. The age pattern is largely explained by the paying off of mortgages on primary residences.

The proportion of families borrowing through mortgage loans in 1995 was up slightly from the 1989 level, but the median amount outstanding rose about 30 percent over the 6-year period. Over the same period, the median value of a primary residence rose only 4.8 percent; the much larger rise in the size of mortgage debt suggests that families were using more of their home equity for purchases or investments other than the purchase of their primary residence. Since the Tax Reform Act of 1986, which phased out the deductibility of

non-mortgage debt, loans secured by home equity have increasingly served as a source of tax-preferred funds.

The share of credit card debt also expanded between 1992 and 1995, but it remained a small part of total family debt. Offsetting this increase was a strong decline in the share of borrowing for investment real estate.

Two indicators of potential financial distress are the share of families with debt who have payments exceeding 40 percent of their income and the share who were late with their payments by 60 days or more at least once in the preceding year. The 1992-95 period saw little change in the proportion of highly indebted families (that is, those with payments exceeding 40 percent of their income), but the proportion of debtors who were late payers rose nearly 1 percentage point.

Source: Kennickell, A.B., Starr-McCluer, M., and Sunden, A.E. 1997. Family finances in the U.S.: Recent evidence from the Survey of Consumer Finances. *Federal Reserve Bulletin* 83(1):1-24.

Charts From Federal Data Sources

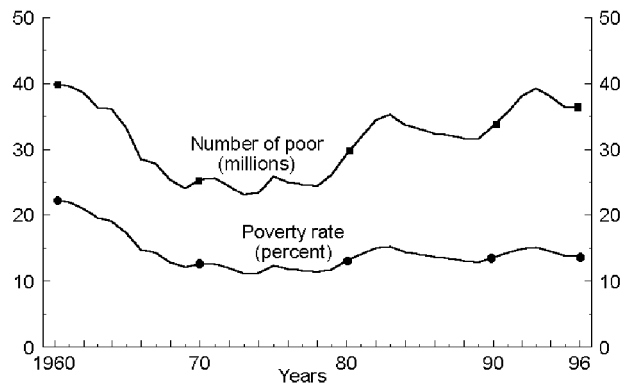
Poverty in the United States

The number of people in the United States in poverty shows the economic well-being of the Nation as well as the economic well-being of the people. U.S. poverty thresholds were originally based on the USDA's economy (now called thrifty) food plan and amounted to \$16,029 for a family of four in 1996. Poverty rates vary over time, by State and family characteristics, and the same people do not remain poor year after year.

Poverty rates over time:

In 1996, 13.7 percent of the U.S. population—36.5 million people—were in poverty. This represents a slight increase from the 1990 figure of 13.5 percent but a significant decrease from the 1960 figure of 22.2 percent (39.9 million people). After 1960, many government programs were instituted to combat poverty.

Percent and number of persons in poverty in the United States over time

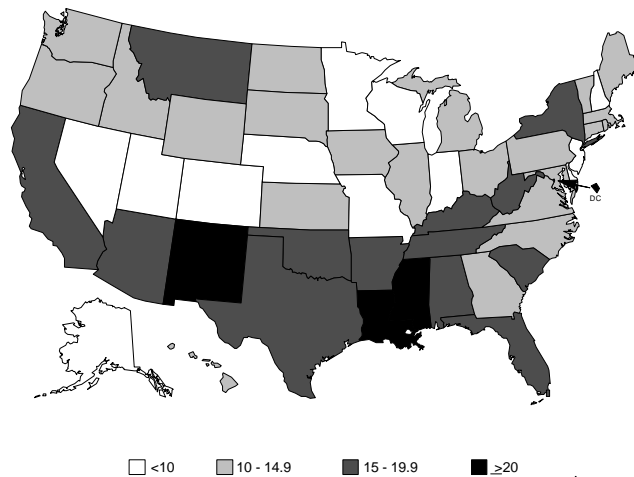


Source: U.S. Department of Commerce, Bureau of the Census, Current Population Surveys.

Poverty rates vary by State:

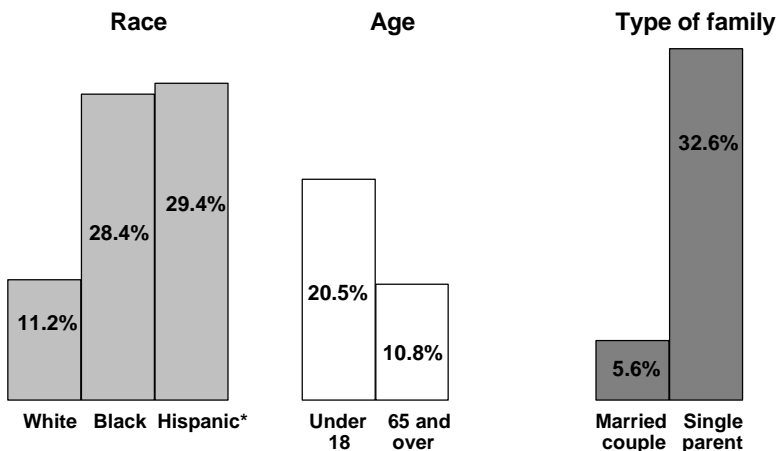
Poverty rates vary considerably among States. During the 1995-96 period, 12 States had a poverty rate below 10 percent and 3 States plus the District of Columbia had a poverty rate of 20 percent and above. New Hampshire had the lowest poverty rate (5.9 percent) and New Mexico, the highest (25.4 percent).

Percent of persons in poverty by State, 1995-96



Source: U.S. Department of Commerce, Bureau of the Census, Current Population Surveys.

Poverty rates by selected family characteristics, 1996

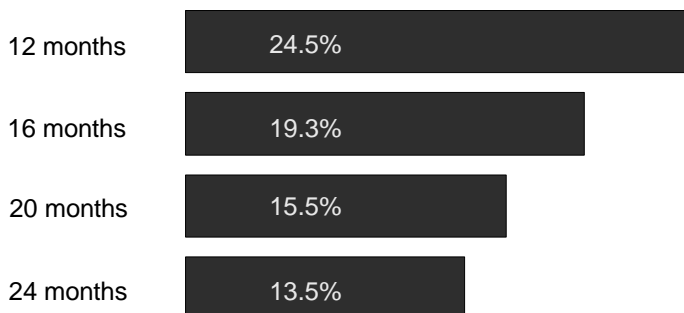


*May be of any race.
 Source: U.S. Department of Commerce, Bureau of the Census, Current Population Surveys.

Rates also vary by family characteristics:

Poverty rates vary by family characteristics. Black and Hispanic persons have poverty rates over twice that of White persons. Children and teens are twice as likely to be poor than elderly persons are—1 in 5 children or teens in the United States are poor compared with 1 in 10 elderly persons. Single-parent families have one of the highest poverty rates. One-third of single-parent families are in poverty, compared with 5.6 percent of married-couple families.

Percent of persons poor during 1992, still poor after ...



Source: U.S. Department of Commerce, Bureau of the Census, Survey of Income and Participation.

Same people, however, do not remain in poverty:

People move in and out of poverty. The same people who are poor one year are not necessarily poor the next year. Of people poor during 1992, 24.5 percent were still poor 12 months later, and only 13.5 percent were poor 24 months later. Although people move in and out of poverty, certain groups (Blacks, Hispanics, children, and single-parent families) have relatively high poverty rates over time.

Research and Evaluation Activities in USDA

From the Food, Nutrition, and Consumer Services' Center for Nutrition Policy and Promotion

The Center for Nutrition Policy and Promotion (CNPP) has several new and several ongoing projects of interest to the nutrition community.

Adapting the Food Guide Pyramid for Young Children

CNPP seeks to improve young children's diets by adapting and translating dietary guidance into dietary practice. Thus, CNPP is adapting the Food Guide Pyramid for children 2 to 6 years old and developing food guide-based nutrition messages and materials to support child nutrition education efforts.

The Food Guide Pyramid was designed to help healthy Americans 2 years of age and over implement the *Dietary Guidelines for Americans*, which serve as the basis for Federal nutrition policy and food guidance. Children from 2 to 6 years old were selected as the target audience for adapting the Food Guide Pyramid for the following reasons: (1) Children have unique nutrient needs and requirements and undergo significant growth and developmental changes; (2) research indicates that early food experiences are crucial to food acceptance patterns, food preferences, and food intake regulation throughout life; (3) the U.S. Department of Agriculture (USDA) receives numerous requests for information about feeding young children, particularly guidance about appropriate serving sizes; and (4) USDA

is committed to improving the nutritional status of children, including those served by the Child and Adult Care Food Program (CACFP). Furthermore, only 1 percent of children 2 to 9 years of age meet all Food Guide Pyramid recommendations.

CNPP is managing the project in two phases: Development of the technical information (Phase I) and the communication plan for adaptation (Phase II). Phase I includes a number of activities:

- Reviewing the goals and objectives of the current food guide and adapting them for the special needs of young children, their parents, and caregivers;
- examining food selections and typical portion sizes reported for young children in food consumption surveys to determine if currently recommended food patterns based on the Pyramid can reliably meet the established goals and objectives;
- incorporating data on the nutritional quality of child care meals and snacks from the Food and Nutrition Service's Early Childhood and Child Care Study; and
- conducting a series of in-depth discussions with nutrition educators to get input on behavioral and developmental considerations that are important in feeding young children.

Phase II consists of CNPP working with a contractor on three major communications activities:

- Designing, conducting, analyzing, and interpreting a qualitative consumer research study based on results of technical research provided by CNPP, including recommendations for prototype nutrition products and materials;
- pretesting prototype nutrition promotion messages and materials; and
- developing a communications plan outline for adapting the Food Guide Pyramid for the target audience.

September 1998 is the projected completion date for the project.

USDA's Food Guide: Updating the Research Base

The Food Guide Pyramid graphic illustrates what constitutes a healthful diet and conveys the importance of balance, moderation, and consumption of a variety of foods. The research base for USDA's food guidance system provides the scientific underpinning of USDA's consumer food guidance information, providing documentation that its recommended food selection patterns can meet the Guide's established nutritional objectives. The research base for the Food Guide was developed from USDA's 1977-78 Nationwide Food Consumption Survey and was recently updated using food composition and food consumption data from the 1989-91 Continuing Survey of Food Intakes by Individuals (CSFII).

Food group composites are based on the relative frequency of selection of specific foods within the food group (e.g., vegetables) or subgroup (e.g., dark-green leafy) regardless of their preparation with fat and added sugars. The 1989-91 CSFII was used to update the composites. Nutrient profiles using 1991 nutrient data were developed based on the weighted consumption of foods within each food group and subgroup. Food Guide Pyramid patterns for 1,600 calories, 2,200 calories, and 2,800 calories were created using the revised composites. Effects of changes in food selection between 1977 and 1991 on food group nutrient profiles were assessed to determine if Food Guide Pyramid recommendations continue to meet nutrient objectives such as the Recommended Dietary Allowances. An administrative report is being prepared.

The Dietary Guidelines for Americans

The *Dietary Guidelines for Americans*, first released in 1980 and revised in 1985, 1990, and 1995, are published jointly by the U.S. Departments of Agriculture (USDA) and Health and Human Services (DHHS). The Dietary Guidelines provide the basis for Federal nutrition policy and nutrition education activities. Nutrition and health professionals actively promote these Guidelines to focus Americans' attention. The Dietary Guidelines bulletin advises healthy Americans, ages 2 years and over, about food choices that promote health and prevent disease. The bulletin is based on the recommendations of a Dietary Guidelines Advisory Committee (DGAC)—a panel of nationally recognized nutrition and health experts.

In early 1998, USDA and DHHS will appoint a DGAC to review the 1995 Guidelines and recommend changes that reflect new scientific evidence on diet

and health relationships and new information on the usefulness of the earlier editions to professionals and the public. The committee will hold three to four meetings open to the public during 1998-99 and receive written comments about the Guidelines from the public. The committee will issue its recommendations to the Secretaries of USDA and DHHS in a report to be published late in 1999 or early in the year 2000. The two Departments will then review the DGAC report and jointly release the fifth edition of the Dietary Guidelines in the year 2000.

The Dietary Guidance Working Group

The Dietary Guidance Working Group (DGWG) was established on January 2, 1986, under the Subcommittee for Human Nutrition of the Research and Education Committee, Secretary's Policy and Coordination Council. The Working Group was formed to help agencies meet the objectives of legislation related to dietary guidance and USDA's food and nutrition policy. Eight USDA agencies are represented; DHHS has a liaison member. Title III of the National Nutrition Monitoring and Related Research Act of 1990 calls for the Secretaries of Agriculture and Health and Human Services to publish the *Dietary Guidelines for Americans* at least every 5 years and for the Secretaries to review and approve dietary guidance for the general population prior to its release. The purpose of these actions is to ensure that Federal dietary guidance is consistent with the *Dietary Guidelines for Americans* or based on new medical or scientific knowledge determined to be valid by the Secretaries.

In 1994, USDA and DHHS signed a Memorandum of Understanding to formalize the review process. The Working

Group reviewed 15 draft publications produced by the two Departments in fiscal year 1997 and discussed special topics at monthly meetings: "DGWG Philosophy of Nutrition Educators for Writers," "Thinking Beyond the Printed Page," and "The Dietary Guidelines Alliance," which includes background information on the formation of the Alliance and results of the consumer research used to develop its publication "Reaching Consumers with Meaningful Health Messages—A Handbook for Nutrition and Food Communicators." The Alliance was formed to promote consumer awareness and use of the Dietary Guidelines and is a coalition of representatives from the food industry, health organizations, and government.

Expenditures on Children by Families, 1997

Each year since 1960, USDA has published a report that provides estimates of annual expenditures on children from birth through age 17. USDA estimates are used to set State child support guidelines and foster care payments. This newest report presents the 1997 estimates for husband-wife and single-parent families using data from the 1990-92 Consumer Expenditure Survey, updated using the Consumer Price Index.

For husband-wife families, child-rearing expenses are provided for three income groups and for single-parent families, for two income groups. To adjust, in part, for price differentials and varying expenditure patterns, estimates are also provided for husband-wife families in urban areas in the West, Northeast, South, and Midwest; rural areas throughout the United States; and the United States overall. For single-parent families, estimates are provided for the overall United States only. Expenditures on children are estimated for the major

budgetary components: Housing, food, transportation, clothing, health care, child care and education, and miscellaneous goods and services.

For the overall United States, annual child-rearing expense estimates are between \$8,060 and \$9,170 for a child in a two-child, married-couple family in the middle-income group. Housing and food account for the largest proportion of total child-rearing expenses. Expenditures are lower for younger children and higher for older children. More is spent on an only child, and less is spent on a child in a family with three or more children.

Healthy Eating Index

To examine how well the American diet conforms to recommended healthful eating patterns, the USDA developed the Healthy Eating Index (HEI) in 1989-90 to provide a measure of overall diet quality. The Index, based on different aspects of a healthful diet, provides an overview of foods people are eating, the amount of variety in the diet, and compliance with specific dietary guidelines recommendations. Ten dietary components are gauged: The degree to which a person's diet conforms to USDA's Food Guide Pyramid serving recommendations for the grains, vegetables, fruits, milk, and meat food groups; total fat and saturated fat consumption; total cholesterol and sodium intakes; and variety in the diet.

The HEI is calculated from 1994-96 data from the Continuing Survey of Food Intakes by Individuals. HEI scores for the overall population and for socio-demographic groups are now available.

Thrifty Food Plan

The Thrifty Food Plan (TFP) serves as a national standard for a nutritious diet at practically the lowest possible cost. It is one of the four official USDA food plans (the others being the Low-Cost Plan, Moderate-Cost Plan, and Liberal Plan) and is used as the basis for food stamp allotments. The plan specifies the types and quantities of foods that people in 12 age-gender groups could consume to have a nutritious diet at a minimal cost. The last revision of the TFP market basket was in 1983. Since then, dietary guidelines, food consumption patterns, nutrient composition data, and food prices have changed.

The TFP market basket is being revised to account for the most current knowledge of nutritional needs. The 1989 Recommended Dietary Allowances (RDAs), the 1995 *Dietary Guidelines for Americans*, and the Food Guide Pyramid food group serving recommendations provide the basis for the revised TFP dietary standards. This revision of the TFP is the first one to incorporate Food Guide Pyramid serving recommendations. Data used for the revision are from the 1989-91 Continuing Survey of Food Intakes by Individuals and various national price data bases. The cost of the revision was set not to exceed the average real cost of the TFP for 1989-91. This cost was used to ascertain whether, and how, a household could have a nutritious diet. Results of the TFP revision should be available in 1998.

Official USDA Food Plans: Cost of Food at Home at Four Levels, U.S. Average, June 1998¹

AGE-GENDER GROUPS	WEEKLY COST				MONTHLY COST			
	Thrifty plan	Low-cost plan	Moderate-cost plan	Liberal plan	Thrifty plan	Low-cost plan	Moderate-cost plan	Liberal plan
INDIVIDUALS²								
CHILD:								
1-2 years	15.00	18.50	21.70	26.30	65.00	80.20	94.00	114.00
3-5 years	16.30	20.30	25.10	30.10	70.60	88.00	108.80	130.40
6-8 years	20.20	27.00	33.60	39.10	87.50	117.00	145.60	169.40
9-11 years	24.00	30.60	39.10	45.30	104.00	132.60	169.40	196.30
MALE:								
12-14 years	24.90	34.60	42.80	50.40	107.90	149.90	185.50	218.40
15-19 years	25.60	35.60	44.40	51.30	110.90	154.30	192.40	222.30
20-50 years	27.60	35.50	44.30	53.70	119.60	153.80	192.00	232.70
51 years and over	24.90	33.90	41.70	50.10	107.90	146.90	180.70	217.10
FEMALE:								
12-19 years	24.70	29.80	36.10	43.70	107.00	129.10	156.40	189.40
20-50 years	24.90	31.10	37.90	48.60	107.90	134.80	164.20	210.60
51 years and over	24.40	30.10	37.50	44.90	105.70	130.40	162.50	194.60
FAMILIES:								
FAMILY of 2³:								
20-50 years	57.80	73.30	90.40	112.50	250.30	317.50	391.80	487.60
51 years and over	54.20	70.40	87.10	104.50	235.00	305.00	377.50	452.90
FAMILY OF 4:								
Couple, 20-50 years and children—								
1-2 and 3-5 years	83.80	105.40	129.00	158.70	363.10	456.80	559.00	687.70
6-8 and 9-11 years	96.70	124.20	154.90	186.70	419.00	538.20	671.20	809.00

¹Basis is that all meals and snacks are purchased at stores and prepared at home. For specific foods and quantities of foods in the Low-Cost, Moderate-Cost, and Liberal Plans, see *Family Economics Review*, No. 2 (1983); for specific foods and quantities of foods in the Thrifty Food Plan, see *Family Economics Review*, No. 1 (1984). The food plans are based on 1977-78 Nationwide Food Consumption Survey data updated to current dollars using the Consumer Price Index for specific food items.

²The costs given are for individuals in 4-person families. For individuals in other size families, the following adjustments are suggested: 1-person—add 20 percent; 2-person—add 10 percent; 3-person—add 5 percent; 5- or 6-person—subtract 5 percent; 7- (or more) person—subtract 10 percent.

³Ten percent added for family size adjustment.

Guidelines for Authors

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